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I

THE CAUSE AND EXTENT OF THE RECENT INDUSTRIAL PROGRESS OF GERMANY

THE CAUSE AND EXTENT OF THE RECENT INDUSTRIAL PROGRESS OF GERMANY

BY

EARL DEAN HOWARD, PH. D.

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PREFACE

This series of books owes its existence to the generosity of Messrs. Hart, Schaffner & Marx of Chicago, who have shown a special interest in trying to draw the attention of American youth to the study of economic and commercial subjects, and to encourage the best thinking of the country to investigate the problems which vitally affect the business world of to-day. For this purpose they have delegated to the undersigned Committee the task of selecting topics, making all announcements, and awarding prizes annually for those who wish to compete.

In the year ending June 1, 1905, the following topics were assigned: —

1. The cause and extent of the recent industrial progress of Germany.
2. To what is the recent growth of American competition in the markets of Europe to be attributed?
3. The influence of industrial combinations upon the condition of the American laborer.
4. The economic advantages and disadvantages of present colonial possessions to the mother country.
5. The causes of the panic of 1893.
6. What forms of education should be advised for the elevation of wage-earners from a lower to a higher industrial status in the United States?

7. What method of education is best suited for men entering upon trade and commerce?

The present volume was awarded the first prize.

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THE CAUSE AND EXTENT OF THE RECENT INDUSTRIAL PROGRESS OF GERMANY

CHAPTER I. — INTRODUCTION

INDUSTRIAL PROGRESS IN GENERAL

It is the purpose of the present work to describe and account for an industrial development which at first thought seems most extraordinary. The development of the United States has of course been more rapid; but to one familiar with the immense natural resources, the favorable situation, and the rapid increase of a population characterized by great energy and enterprise, of "this land of unlimited possibilities" (to use a phrase which has recently caught the fancy of the Germans and is constantly in their mouths), the industrial expansion of the United States seems quite natural and easily explained.

Not so in Germany.

Germany is an old country, and for several centuries her people have been poor among civilized nations. The fertility of her soil is generally far below that of neighboring territories, and her silver mines were long since practically exhausted. Her situation is such that she has been in constant danger of war within her own territories, a danger which has compelled her to maintain a most expensive army. Her population, until within the last fifty years, has been predominantly agricultural, and has had a reputation for unprogressiveness and lack of enterprise. All these circumstances, as well as the char-

acter of the government itself and of German social institutions, which have placed so many restrictions on individual freedom, might seem almost to justify the antithetical description of Germany as "the land of impossible limitations."

That a nation so handicapped should, in the last third of the century, exhibit a development which is in many respects comparable to that of the United States, — a development which has enabled her completely to surpass all her continental competitors, and which has alarmed Great Britain, so long undisputed in her sway over the world's commerce, — is a phenomenon well worth studying.

Professor Schmoller describes the change which has taken place in Germany in the following language: —

> "A hundred years ago, a poor country of peasants and handicraftsmen, thinkers and poets, divided into several hundred weak and small States; to-day, a great, unified, powerful Empire, whose prosperity, great industries, and technique, whose army and bureaucracy, Constitution and free government, and whose power and strength are appreciated far beyond her frontiers."

What is the extent of this remarkable development; and what have been the chief causes at work?

It is a commonplace to remark that the only laboratory available to the student of the social sciences is social experience past and present; he cannot artificially isolate his phenomena for the purpose of studying cause and effect, but must trace out these relations amid all the complexities of life as he finds it. If, therefore, in the present study we are able to determine a few relations of cause and effect in this typical industrial community, the results may help to a solution of our own problems in America.

Industrial progress has been made by civilized countries in various forms and at very different rates, but the history of all shows a rough uniformity of development

following certain general principles. Before beginning the study of one of these countries, it will therefore be advantageous to review briefly these general principles of industrial development, and thus to get an outline by which to guide us in our further discussion. In this way principles and tendencies which are general may be distinguished from those which are peculiar to Germany alone.

We shall use the word "industry" as a general term to cover the production and exchange of goods; in other words, the extraction of raw materials from the earth, their elaboration into goods suited to human needs, and their transportation to the locality where they are to be consumed. This includes the activities of agriculture, forestry, fishing, mining, manufacturing, and commerce. Industrial progress means, therefore, increase in amount of goods produced and transported, and improvement of methods by which this increased production is accomplished.

Three fundamental facts underlie the industrial development of all countries during the nineteenth century.

1. A radical change in political and economic ideas which has manifested itself in altering social institutions.

2. An improvement in the technique of production and exchange, accompanied by the accumulation and employment of large masses of capital.

3. An increase in the density of population in civilized countries.

The end of the eighteenth century and the beginning of the nineteenth saw a general revolt against the system of industrial restrictions which had come down from mediæval times. The French Revolution and the publication of Adam Smith's "Wealth of Nations" are two events which mark this change. In former times it had

been thought necessary for the government or its representative, the guild, to interfere in all economic activities, and to make minute prescriptions for the regulation of industry. This came about largely because statesmen and rulers had no conception of the principle of free competition as a sufficient regulator of economic conduct, while many sovereigns regarded their dominions simply as sources of revenue for the crown. The efforts of the most far-sighted rulers were directed to preserving and improving sources of royal income.

These industrial limitations and restrictions of mediæval times probably did not press so hard upon the people as we are likely to imagine; theirs was an age of status, and it was thought proper and necessary that a person's economic means should correspond to his social position. The fundamental idea of industry was livelihood rather than gain. Accordingly the effort was made to put every member of society in the way to secure a livelihood suited to his social position, and to prevent other people from interfering with him. The guild regulations aimed just as much to protect the individual in his business as to hinder him from enlarging it.

It was only when the masters attempted to gain an undue advantage and to make their monopoly oppressive, and only when industry had begun to take on a capitalistic form in consequence of a growing commerce and the invention of technical improvements in production, that the regulations came to be regarded as evils.

The relations between landlord and peasant had been well adapted to the conditions of the time which saw their introduction, but they gradually degenerated until they became little else than those of master and slave, and economic progress demanded their abolishment.

In those pre-capitalistic times, agriculture was the basis of economic life, and other industries were carried on mainly as being subsidiary thereto. The peasant sup-

plied nearly all his needs from the land on which he lived, he and his family producing for their own consumption. What limited need he had for manufactured goods was satisfied by the products of household industry, except in the few cases in which special skill or more elaborate tools than he possessed were required. Pottery and blacksmithing were the important trades which had an existence independent of agriculture. In the earlier communities the smith and the potter received from the other members certain regular amounts of provisions, the amount of the contribution assessed on each member depending on the size of his holding. Even after the workman came to be paid for the specific service performed, it was frequently the custom for the customer to furnish the raw material.

When each little community was practically self-sufficing, there was naturally little commerce. What little traffic was able to surmount the difficulties of transportation consisted in goods of a very high value in small bulk, or in such exotic products as indigo, sugar, spices, and silks.

The production of articles for this small trading, domestic and foreign, gave rise to a certain amount of specialized industry, which concentrated itself, epecially in Germany, in the towns. The exchange of goods took place at certain specified places and times, which were called fairs. Textiles formed the great bulk of this commerce, and it was in the spinning and weaving industries that the capitalistic form earliest appeared.

Properly to understand the economic life of that time, one must keep constantly in mind the fact that the industry was carried on without any considerable investment of capital, and that it involved little else than the personal skill of the workman. The relative importance of the material element, capital, and the human element, manual dexterity, was exactly the reverse of their impor-

tance as we are accustomed to think of them to-day. Under these circumstances, it was natural that personal relations should have more prominence than property relations.

All those engaged in the several industries were organized in guilds, governed by the master-workmen. They determined in minute detail when, where, and at what price the raw materials and the finished goods should be bought and sold, and how they should be made. They guarded the interests of the producers by rules which restricted competition in buying materials, and which limited the number of workmen in the trade; they protected the interests of the consumers by regulations regarding the quality and price of finished goods. Originally, the guilds were designed to guard the public weal, and it was only later that they were used to advance narrow class interests.

The expansion of commerce and the opening up of new markets, together with the improvement in technique, made the guild system obsolete. As soon as man began to make a systematic study of natural phenomena, and thus to learn the secret of natural forces, he was prepared to employ them in his service. The epoch-making discoveries and inventions of the latter half of the eighteenth century may trace their origin back to the laboratories of the natural philosophers, who had little idea of the practical results which would come from their studies in science.

To make use of this newly acquired power over natural forces required machinery, or in other words, capital, and the persons who possessed these machines, the capitalists, had control of these new forces. With the advent of the machine and capital, there came a revolution in the manner of conducting industry; the idea of gain replaced the idea of earning a mere livelihood. The simple possession

of capital came to be as much a source of gain as labor and skill.

With a broader market stimulating him to increased production, and with the need of more capital (to enable him to extend operations and to exploit the new inventions), forcing him to earn and to save beyond the requirements of the mere sustenance of himself and family, the industrial master-workman underwent a fundamental change in his ideas, and became transformed into the capitalistic *entrepreneur*.

The restrictions put upon industry in the form of guild ordinances were advantageous to the producer under the handicraft system. The amount of his output was naturally limited, and he was willing to submit to regulations which, if they pressed upon him at times, yet more than compensated him by the protection which they gave to his business. If they prevented him from extending his operations, they at the same time also shielded him against competition and assured him a living. The capitalistic producer, on the other hand, was limited in his productive capacity only by the amount of capital he could control, and was naturally anxious to increase that capital as rapidly as possible. Since he was stronger in competition than his handicraft rivals, the regulations which prevented competition hindered rather than helped him. Capitalism was therefore the opponent of industrial restriction.

At the same time these changes were occurring, the political ideas of the people were taking a new direction. The revolutionary theories of equality and the natural rights of man were adopted by the founders of the new science of political economy, and gave aid to the forces of capitalism in abolishing the old restrictions.

The mastery of natural forces which was attained in manufacturing was also attained in transportation, and

effected changes which promoted the industrial revolution. The locomotive and the steamboat enabled the cheaply produced machine products to be distributed widely and to satisfy the demand of large areas. Hence arose the extensive specialization of industry in particular localities of the state and in particular states of the earth. England became the foremost manufacturing and commercial nation of the earth, and the economists of the first half of the nineteenth century looked forward to still greater national specialization. The Free-trade theories of the classical economists and the acceptance of these theories in legislation reflected the ideas of the period. England looked forward confidently to the time when all nations would accept her commercial policy, but the economic history of the past fifty years shows how ill founded were these expectations. National interests seemed to the statesmen of other countries to dictate a different policy, and the protective-tariff laws of the period from 1875 to 1885 had the appearance of a concerted action on the part of Germany, Austria-Hungary, France, Russia, Sweden, and the United States of America, against England, to prevent the national specialization of industry.[1]

So far from realizing her ambition to become the manufacturing nation for the world, England has been forced in the last few years to consider a protective tariff to protect her own domestic market against foreign, especially German, competition!

The figures given below show the decline of England's export trade relative to the population. This is decidedly marked after the period 1870–1874, notwithstanding the great improvement and cheapening of transportation facilities, which in the absence of counter-tendencies should have caused the expansion of this trade.

[1] Rudolph Martin, *Die Eisenindustrie in Ihrem Kampf um den Absatzmarkt*, chap. iv. Leipzig: Dunker & Humblot, 1904.

THE EXPORT OF BRITISH PRODUCTS FROM GREAT BRITAIN [1]

Year	*Amount per capita of population* *Annual average*		
1854	£3	10s.	0d.
1855–1859	4	2	3
1870–1874	7	7	3
1880–1884	6	13	0
1885–1889	6	3	7
1890–1894	6	2	10
1895–1899	5	19	0
1900	6	17	3
1902	6	13	3

That specialization in the sphere of industry which has been so obstructed nationally by the commercial policies of different governments has gone on unhindered, within the nations severally, among the working population. Division of labor has so important an effect on the cheapening of production that it becomes a tendency of irresistible force, especially in a nation competing in the world markets. The development of machine industry brings with it the ever-increasing subdivision of labor, and the task of the individual workman becomes ever more circumscribed and specialized.

The power of France in the seventeenth and eighteenth centuries was derived in large measure from her agricultural resources, while in the nineteenth century the might of England was based to a large extent on her wealth of iron and coal. The use of these minerals in modern economic life is a fundamental feature of industrial development during the nineteenth century. Coal and iron have become the indispensable means by which man applies his knowledge of natural forces to industrial ends.

Production has been enormously cheapened, but has become at the same time vastly more complicated and highly organized; the connection between production and

[1] *British Foreign Trade and Industry*, prepared in the Board of Trade, p. 403. London: Eyre & Spottiswoode, 1903.

consumption has become indirect and uncertain, the individual has lost his power of producing for his own needs, and has been forced to find his place in the organized system.

The most recent economic development is the manifestation of a persistent tendency in the direction of further organization. As already noted, modern capitalistic industry, aided by the political philosophy of "natural rights," broke through the bonds of mediæval regulation, and attained economic freedom under the principle of free competition as the sufficient regulator of values and economic relations. Beyond a certain point, however, organization of industry tends to make free competition impossible, and it becomes necessary to return to the principle of social regulation, or to devise some new regulator of values.

Free competition is impossible unless there is some sort of equality among competitors, and the condition of equality is one which has never existed since capital came to play a leading part in industry, and one which is becoming more impossible as industry becomes more highly organized. Not only do men as individuals differ in economic strength, but they have the power of forming associations which may act as industrial units, severally many times stronger than the individuals creating them. The organization of capital which has developed so rapidly in the recent past tends to destroy whatever of competitive equality formerly existed; the great capitalistic corporations and syndicates are in position to exterminate the economically weaker, and to enter into competitive wars with the stronger concerns until one or the other is vanquished. This is exactly what has happened in the last fifteen years in those industries which adapt themselves most easily to large organization. One may mention in this connection the industries producing sugar, petroleum, rubber, and steel.

As long as the market continues to expand as fast as the organization of industry, the competing companies are content to live and let live, but as soon as the capacity for production exceeds the demand of the markets, the war of competition begins, and continues until the weaker has succumbed, or a syndicate has been organized, which means that all the companies are practically consolidated into one having full control of the market. Competition has come to an end, not in a fortuitous manner, but as the result of an economic tendency worked out to its inevitable conclusion. Domestic competition being destroyed, the only regulator of values remaining is competition from foreign sources, the effect of which may be largely, sometimes entirely, nullified by high protective tariffs, or by agreements between the syndicates of different countries; foreign competition failing, the community must depend upon the law of monopoly price, or upon control by the state for the regulation of values.

An important factor in the industrial development of the nineteenth century has been the rapidly increasing density of populations in industrial countries. There seems to be a rough coincidence in civilized countries between the rate of increase of population and the rate of industrial progress. The following table gives percentage increase annually of populations in the various countries during the last census period: [1] —

United States	1.89%	Great Britain	.94%
German Empire	1.50	Spain	.88
Netherlands	1.23	Italy	.69
European Russia	1.12	France	.17
Belgium	1.01		

European Russia and Spain seem to occupy positions in this series quite out of proportion to the rate of indus-

[1] *Statistisches Jahrbuch für das Deutsches Reich*, 1904, Anhang, p. 3.

trial progress, but in both cases there are political facts which easily account for the discrepancy.

Whether increasing density of population is cause or effect of industrial progress is difficult to determine. It is probably true that a period of prosperity is usually followed by an increase of population, and thus the increase of population seems to be the effect; but it may likewise be true that crowding of population upon the resources of a country may compel its inhabitants to devise technical improvements to increase production, or to adopt sooner than they otherwise would do, the inventions of other nations. Railroads, for instance, are more likely to be built where the population is dense than where it is sparse, and the building of railroads is in itself a cause of development in other lines of industry.

Increasing density of population is therefore easily conceived to be at the same time both cause and effect of industrial progress. A period of prosperity will ordinarily be followed by an increase in the birth rate, while the pressure upon the natural resources of a country supporting a dense population will lead to more strenuous industrial effort, and will offer greater inducement to technical advance.

In some cases, however, when density of population increases the supply and depresses the price of labor, improved machinery may be kept out by the resulting cheapness of the labor supply, as in the textile industry in Germany fifty years ago. Again, very small landholdings and intensive cultivation are conditions unfavorable to the introduction of agricultural machinery.

This restatement of familiar facts may serve to emphasize the importance of technical improvements and of capitalistic organization in a nation's industrial development. Further, it may serve to emphasize the influence of an increasing and dense population. Finally, it will provide an outline by which to measure the progress of

Germany from the lower to the higher stages of industrial development, and may aid in explaining why her development seems at certain times to have been arrested, and at others to have proceeded with extraordinary celerity.

CHAPTER II

ECONOMIC CONDITIONS IN GERMANY BEFORE 1871

Until nearly the close of the nineteenth century, Great Britain was the pioneer in the industrial development outlined in the preceding chapter. That country took the lead in making a practical trial of the *laissez-faire* doctrines of free and unrestrained competition as the natural and sufficient regulator of all economic relations. Her isolated position and consequent freedom from the ravages of war within her own territory enabled her to accumulate capital and to embark in extensive capitalistic enterprises. The country, however, suffered a disadvantage from the too sudden transition from the handicraft to the factory system of production, and the period of the industrial revolution is the darkest in her economic history. Other countries, following more leisurely along the same road, have been able to avoid some of the worst features of the revolution. With reference to Germany, Professor Sombart says: —

"If one wants to be quite accurate, one must always add this when one is describing the position of the German workman: that with us the phenomena of poverty have not made their appearance to the same extent or with the same acuteness as, for example, in England and France. The main reason for this is to be found in the fact that capitalism was later in developing itself, and that therefore the movement of reaction against the exploitation of the workpeople came, comparatively speaking, earlier there. . . . The portion of the proletariat has in its main lines resembled that elsewhere, though the picture has never been quite so black." [1]

[1] *Die Deutsche Volkswirtschaft im XIX. Jahrhundert*, p. 525. Berlin: Georg Bondi. 1903.

While England was thus blazing the trail in the economic wilderness, Germany was making slow progress. In view of the rapid industrial development of Germany during the last twenty-five years, which shows that this country must have had latent powers of development even while in so backward a condition, it will be interesting to search for the causes which retarded the growth of the country until so late a date. If we are able to discover the retarding influences which survived so long, we shall be better able to explain the great progress made when these were removed.

Probably the most important cause of Germany's backwardness was her geographical position in the centre of Europe, which condemned her to be the battle-ground of the Continent.

Before the Thirty Years' War, Germany enjoyed a considerable prosperity. To be assured of the fact, one need only remember the flourishing trade of the Hanse cities, and the wealth of the Fugger family, largely drawn from the silver mines of South Germany. The war, however, completely extinguished all industrial activity. At the close of this dark period the population of the country had been reduced more than one half, and the large part of this half was composed of a generation of men either untrained in industrial pursuits, or so long accustomed to living on the booty of war as to be entirely unfit for regular industry. Thousands of discharged soldiers wandered about the country, begging, or despoiling the peasants by virtue of legal permits (*motatorien*). The wealth of the country had been almost completely destroyed. Few horses remained to meet the needs of agriculture and transportation; the spade replaced the plow and the push-cart the wagon.

The rate of interest ranged from ten to thirty per cent, while the current rate in Holland at the same time was from three to six per cent. Land had sunk to one fourth of

its former value, and hundreds of thousands of houses had been burned. The important industries of the time — brewing, wine-pressing, paper-making, book-printing, wool-weaving and linen-weaving — had entirely ceased, or led a most precarious existence.[1]

Frugality and industry no longer availed to secure a livelihood, but in their stead prevailed craft, force, and deceit. The small states and principalities became independent, and isolated themselves from one another by a system of burdensome taxes and customs duties. The petty courts struggled to keep up appearances on empty treasuries by exploiting their subjects.

During this time of Germany's deepest degradation, England was extending her foreign commerce by every means in her power. The Navigation Acts of Cromwell's reign and the conquests over the Dutch from 1650 to 1713 enabled England to transfer a large part of the shipping of the Dutch merchant marine to her own vessels, and to monopolize the commerce of her colonies for her own advantage. During the eighteenth century she was constantly extending her colonial possessions by defeating the French. In this she was making preparations for the future, when her great textile and iron industries should be fostered by the demand of this huge market. Her commerce also brought her an accumulation of capital, which enabled her to utilize to the fullest extent the advantages of capitalistic production when the machine era arrived.

The Seven Years' War, though at the time very disastrous to industry and commerce, may be considered as industrially advantageous, in the long run, to the German states, since it gave Prussia a commanding place among these principalities. The results of the rise of Prussia appear in the course of the next century, first in the es-

[1] Gustav Schmoller, *Grundriss der Allgemeine Volkswirtschaftslehre*, Zweiter Teil, p. 594. Leipzig: Dunker & Humblot. 1904.

tablishment of the *Zollvereine*, then of the North German Confederation, and finally of the German Empire. Had Austria retained the headship, the industrial as well as the political history of Germany during the nineteenth century might have been vastly different.

The Napoleonic war again brought destruction to the industries and wealth of the land, although the continental blockade gave a temporary boom to some branches, especially the textile industry. The war had reduced the country to such poverty that the recovery took many years. Up to the middle of the century, at least, the lack of capital was the great obstacle to industrial development. Among the masses of the people, hunger and misery were general both in the cities and in the country, and famine was not uncommon. So widespread was the damage that Professor Sombart writes: [1] "I believe that it will not be amiss to assume that the economic condition of the people was lower in 1830 than in 1802," and 1830 is fifteen years after the conclusion of peace. The war of liberation, however, brought to Germany much political good, even if it did inflict much economic damage for the time being. The idea of German unity received a strong impulse, which was to grow through the century. The number of independent states was reduced from 180 to 39, which in itself was a long step in advance.

Although the *Zollvereine* and the increase of population afforded the necessary conditions for a capitalistic development before 1850, yet there was lacking the spirit of enterprise. Prices of all articles sank, or failed to rise from their former level. There was a great lack of money, for the currency had been drained away to pay for the excess of imports over exports. The English and French competition was so keen at this time that the native industries had small chance to develop.

The later wars in which Prussia has been engaged have

[1] *Die Deutsche Volkswirtschaft im XIX. Jahrhundert* p. 438.

been of short duration, and have been, each of them, steps in the direction of German unity, and cannot therefore be considered as positively disadvantageous to industry.

During the first two or three decades of the past century, the form of Germany's economic life was not essentially different from that of the preceding centuries. Production was carried on both in agriculture and in manufacturing primarily to supply the needs of the producers directly, and to a very small extent only for the markets. The purpose of industrial activity was sustenance, not profit. Before the need for capital in production had created the idea of gain for the purpose of saving and the employment of these savings in further production, it was considered impolitic to allow individuals to produce more than was necessary to maintain them in the social class to which they belonged.

Moreover, each of the petty governments maintained such a close supervision over industrial affairs that hardly a pair of boots could be made without its cognizance. In fact, each prince regarded the industries of his domain as his source of revenue, and regulated them, according to his ability, in a near or far sighted manner. This close regulation gave rise to a system of complicated ordinances, premiums, privileges, etc., and held out inducements to foreign craftsmen to settle in the country.

During the first half of the nineteenth century, the country was predominantly agricultural, and had even declined as a commercial and manufacturing country from the point reached in the sixteenth century, when the eastern trade routes traversed the land and the Hanse cities were the centres of mediæval commerce.

In Prussia in 1804, 73 per cent of the whole population was rural and 27 per cent urban. The rural population can, without qualification, be regarded as almost wholly agricultural, since the handicraft industries were confined almost exclusively within the city walls. Of the 27 per

cent urban population, moreover, a considerable part may also be reckoned in with the agricultural; the statistician, Dieterici, declared that frequently more than half of the city population derived a large part of its livelihood from the cultivation of the soil. Therefore we may safely assume that over 80 per cent of the population of Germany at the beginning of the past century was agricultural. Many of the places which were in the possession of city rights at the time were hardly more than country villages; Prussia had but 17 cities of over 10,000 inhabitants, 102 with from 3000 to 10,000, 502 with from 1000 to 3000, and 383 with less than 1000.

The natural resources of Germany were not favorable to agriculture, and in that age when agriculture was the basis and almost the whole of industry, she was at a disadvantage as compared with her neighbors. Even if the wars had not prevented it, the accumulation of capital out of the surplus production of agriculture would have been a slow process. The cultivators of the soil had no ambition to get more than a living from their industry, and even to this day the capitalistic idea of profit has made but small headway in agriculture.

The form of agriculture has such an important bearing on the whole industrial system of Germany, and explains so much of the backwardness of that country during the past century, that it is worth while to examine it somewhat closely.

The usual method of agriculture in early times in Germany was by communities, the Mark system. In its original form, the Mark was a community of from 30 to 40 families living together in a village, owning and cultivating the surrounding land. Each family possessed a share (*Hufen*) of the whole property in the following threefold manner: 1. The house, barns, and garden, together with the domestic animals, were owned by the individuals as private property. 2. The arable land was divided up into

large fields, in each of which every family had its share or parcel, usually an area as large as a yoke of oxen could plow in a forenoon, hence the name "Morgen." Each family owned sometimes as many as a hundred of such parcels scattered over the whole Mark. In the earliest times, these parcels were occasionally redistributed among the families of the community. 3. Besides the arable land, there existed meadows and forests (*Allemende*) within the Mark, in the use of which members had certain rights of pasturage and fuel-gathering.

This system of scattering the holdings of the members of the community over the whole Mark for the purpose of securing equality in the quality of the holdings, necessitated certain regulations. Since no person could reach any particular parcel of his land without crossing the land of his neighbors (there being no roads or lanes leading to it), it was necessary for the owners of the parcels of each field to cultivate the same crop, to sow and harvest it at the same time (*Flurzwang*), to avoid interfering with each other's operations. Lacking knowledge of the rotation of crops and of the use of fertilizers, they were forced to leave the field lying fallow every third year.

In the course of time, this primitive organization had become altered, and the peasants fell into a state of dependence on the lord whose lands adjoined or were scattered among those of the peasants. It was in East Prussia, especially, that the lord came to have the greatest power over the peasants; in the West the peasant retained more of his old-time independence. The obligations of the peasants to the lord took the form of enforced service, either in the form of hand labor or labor with a team of horses or oxen, for a certain number of days in the year, naturally in sowing or harvesting time, when the peasant could least well afford to give up the time. These obligations became hereditary and bound the peasant in serfdom to the soil, for it was impossible for him to leave as long as

these burdens rested upon him, and there was no way by which he could free himself from them. Until well into the nineteenth century, this species of servitude lasted. In Prussia the edicts of 1807, 1811, and 1816 provided means for the emancipation of the serfs. This tardiness on the part of the German States in adopting reforms which England and France had achieved much earlier is one of the causes retarding the development of German industry.

The form of landholding which necessitated the uniform method of cultivation (*Flurzwang*) was not changed until the Prussian law of 1820 provided a way by which individual holdings could be assembled in one consecutive area, thus permitting the owner to adopt new methods of cultivation, rotation of crops, and other innovations at will. These agrarian reforms were carried out in face of opposition by the lordly proprietors, and only after many concessions had been made, which put heavy burdens upon the emancipated serfs and retarded the process of change.

Although these mediæval institutions were thus abolished early in the century, the form which they gave to agriculture and the character which they gave to the population endured long after. The *Flurzwang*, which compelled each member of the community to cultivate his land in the same manner as his neighbors to avoid mutual interference, was hostile to innovation. No change could be made in the ancient mode of conducting agriculture unless the whole community were willing to adopt the new method. Such an obstacle was too great to be overcome even by the hardiest innovator; the peasants had no conception of any method different from the one which they had been taught, nor had they any ambition to attempt an improvement, and the innovator stood small chance of getting anything but ridicule for his pains.

Conservatism such as this, fostered for centuries by the agricultural system and touching so large a portion of the

population of the country, could scarcely help becoming the predominating trait and surviving even after the institutions which maintained it so long had disappeared. In Germany the peasant clung to his old customs as long as he could, but the increase of population and modern industrialism were forces not to be resisted. The land became too valuable to be allowed to be cultivated in the old primitive way, and the peasant who could not adapt his cultivation to the new methods was compelled to abandon his land and take his place among the wage-earners. So long as the old system continued, and the peasant could support himself from his land, buying and selling but little in the market, German industry could find but a narrow home market for its products. To the conservatism of the German peasant, fostered by the early agrarian system, may be ascribed much of the backwardness of German industry throughout two thirds of the nineteenth century.

In East Prussia, where large estates prevailed, and where, even after the emancipation, laborers remained in a very degraded condition, as well as in the West, where small peasant-holdings were the rule, improvement in technique, introduction of labor-saving machinery, was slow. Large landholders gave too little personal attention to agriculture and were very incompetent business men, while the small peasant-holder had little opportunity to learn the new methods.

Because Germany made the transition from a handicraft to a machine and factory industry so late, she found many hindrances. The competition of the more highly developed countries, especially England, was a formidable obstacle for the manufacturer to face so long as the free-trade policy was retained. Handicraft and house industries did not yield easily to the new order of things, and they survive even to-day in some parts of the country; the artisans are inclined to cling to their craft even after

it has failed to assure them an income sufficient for their needs.

The seriousness of the displacement of these artisans by the factory arises from their inability to adapt themselves to the changed conditions. The natural conservatism of this class, with their ignorance of any occupation except the one in which they have passed a long apprenticeship, and the lack of opportunity to change their employment leave these people in a very critical position when the factory deprives them of a means of livelihood. Very often the nature of their work has unfitted them both physically and mentally for anything else. In a country where every inch of ground has a high value, they have not the resource of turning to agriculture, and the factories which have superseded them may be in a distant part of the country, so that they have no chance to become factory workers.

Trade and transportation restrictions aided in obstructing the new and maintaining the old economic systems and institutions in Germany. Each of the German States before the Zollvereine of 1833 was a foreign nation to the others as far as trade relations were concerned, and even so late as 1818 there were duties to be paid in sending goods from one province to another within the kingdom of Prussia. Friedrich List compared this condition to a human body whose limbs were so bound with cords that the blood could not circulate from one part to another.

The first requisite to large-scale production is a sufficiently large market for the products, and the difference between England and Germany in respect to market conditions explains much of the difference in industrial development. The size of the market on which any single local industry can depend is determined largely by the transportation facilities. The insular position of England, with her long coast line and numerous harbors, affording

cheap transportation between her own ports as well as to foreign countries, contrasted sharply with the inland position of Germany. No point in England is more than seventy-five miles from the sea, and none is very much farther than that from one of the eighty harbors on the coast. On the other hand, Germany's limited sea-coast could afford but slight assistance to domestic and foreign commerce, except in articles of relatively small bulk, and the trade in these was confined to a few ports and the country immediately surrounding them.

The two great German harbors, Hamburg and Bremen, were outside the Zollvereine, and were little better than foreign ports. Their commerce with the Scandinavian countries and Russia was more important than the commerce with the German States of the interior.

Rivers and canals served a few localities with cheaper transportation than that of horse and wagon; but before the era of railroads, the lack of transportation, in addition to the onerous trade restrictions, accounts for much of Germany's industrial backwardness.

England's early industrial development, on the other hand, was fostered by her commerce, which provided a wide market for her products, especially in the colonies settled by English people and accustomed to the consumption of English goods. The German manufacturer had no such market for his wares. The home market was limited to a small area, extended somewhat in a few cases by river navigation. But even here commerce was obstructed by guild regulations, which forbade vessels from going beyond a certain point and thus necessitating the reshipment of cargoes. In addition to this, very high monopoly rates were charged, thus making transportation so expensive as to defeat, in large measure, its purpose as a means of extending markets.

Having no colonies and little shipping, the German States could naturally have no policy of foreign trade

extension, and the manufacturers could win a foreign market only with the greatest difficulty.

Another obstacle to the development of commerce and industry was the diverse systems of weights, coins, and measures of the various states. The Zollvereine, which abolished all tariff duties between the states, provided for the introduction of uniform weights, coins, and measures, but these things were accomplished only after the formation of the North German Confederation. A law was passed in 1868 which introduced the metric system, and after 1872 its use was made compulsory throughout the empire.

The Zollvereine, as it existed from 1834 to 1867, was not a complete economic unity. There was still lacking uniform legislation over industry, patents, warehouses, indirect taxes, and in respect to other matters. Every new law or change in an old one required the unanimous consent of all the members of the Vereine, and the opposition of the most insignificant state could defeat the will of all the others.

Such restrictions to commerce as we have described were most unfavorable to the development of wholesale factory production, and explain the survival of the handicraft system until so late in the century. When the restrictions were abolished and the railroads had opened up home markets to the German manufacturer, the English industries had so cheapened production by wholesale manufacture that the German *entrepreneur* could establish himself only in the face of the severest competition.

One of the most necessary conditions in the organization of industry and the transition from handicraft production to the capitalistic, factory production is a sound and effective monetary and banking system. The modern system of production requires not only an enormous accumulation of capital, but also a means by which this

capital can come under the control of the *entrepreneurs;* in other words, a credit system. The most inventive and enterprising minds of a nation are not usually combined in the same person with large fortunes. Since either enterprise without capital or capital without enterprise is like a dissevered pair of scissors, a way must be provided by which they can be united before they can be effective in industry. To gather together the small accumulations and savings of the community so that they can be available to the *entrepreneur* is one of the functions of a bank; the organization of industry and the development of banking are therefore inseparable phenomena.

How far behind England and the United States was Germany with respect to her banking system is indicated roughly by the following statistics. Mulhall has attempted to estimate the "banking power" of the three countries by adding together the total capital, right of issue, and deposits of the banks. For any ordinary purpose such a superficial calculation would be of little value, but it serves us here by indicating the enormous inferiority of Germany in respect to banking facilities.

BANKING POWER OF ENGLAND, THE UNITED STATES, AND GERMANY; INCLUDING CAPITAL, RIGHT OF ISSUE, AND DEPOSITS

(*In million pounds sterling*)[1]

	1840	1870	1888–1890
Great Britain	£132	£720	£910
Germany	12	49	231
United States	90	440	1030

One of the most characteristic features of modern industrial development is the use of iron and steel in railroad construction, shipbuilding, manufacture of machinery, and for other purposes. The consumption of raw iron is therefore a tolerably good index of the industrial status of a country as a whole. According to this test, Germany

[1] Mulhall, *Dictionary of Statistics*, p. 75.

is again seen to be far behind England and the United States up to 1880.

CONSUMPTION OF PIG-IRON IN ENGLAND, THE UNITED STATES, AND GERMANY, PER CAPITA OF POPULATION

(*Kilograms*)[1]

	1850	1860	1870	1880
England	85	121.9	172.7	177.8
United States	30	31	51	89
Germany	10.6	18.6	38.8	59.8

[1] Martin, *Die Eisen Industrie*, p. 54.

CHAPTER III

THE PROGRESS OF GERMANY SINCE 1871

The economic history of Germany during the nineteenth century may be divided into three periods: the first beginning in the eighteenth century and lasting until the formation of the Zollvereine in 1833; the second extending from this date to the establishment of the empire; and the third comprehending the interval since 1871 to the present time.

The first period is marked by the liberation of the peasants from feudal serfdom, by agrarian legislation, and by at least a partial realization of freedom in manufacturing and commerce, all leading to a new ordering of social and economic arrangements.

In the second period we see the rise of the capitalistic system of production made possible by the extension of market areas following the abolition of tariff obstacles within the German States, and the improvement in the means of transportation, especially in land transportation, by the universal introduction of the railroad. The economic development of both these periods has been discussed in the preceding chapters.

We come now to the third period, the treatment of which forms the chief interest of our present investigation. This period is distinguished by the rapid development of the capitalistic system in manufacturing and commerce and the decline of agriculture in relative importance; as the Germans express it, the transition from an *Agrar-* to an *Industrie-Staat*, in which manufacturing and commerce come to have a predominating place in the economic life

of the country. Meanwhile the organization and concentration of industry has gone on apace, developing into the typical form of *Kartelle* and syndicate.

The complete unity of the German people was consummated by the defeat of the French and the proclamation of the empire at Versailles, January 18, 1871. Two rich provinces and five milliard francs (approximately one billion dollars) compensated Germany for the cost of the war, and gave her capital to develop her industries. The annexation of Alsace and Lorraine added much to the industrial power of the empire, not only by increasing the number of establishments, but in forcing a higher standard of excellence upon the German manufacturers as the only way in which they could meet the new internal competition. But by far the greatest gain came from the uniform policy which Bismarck was able to introduce, the policy of making the empire a world power in an industrial as well as in a military sense.

A recent German writer says: —

"It is almost superfluous to mention the tremendous economic importance which attaches to the founding of the empire. The empire is not a mere extension of the Zollvereine, but it has become the source of uniform legislation for every phase of our economic life, and the support of the economic interests of all parts of the land. Now, for the first time, is possible a uniform industrial policy going beyond a mere tariff and commercial policy." [1]

Immediately after the war, there followed a period of tremendous industrial activity and speculation. While in the whole period from 1851 to 1870, 295 stock companies with a capital of nearly $600,000,000 had been founded, in the four years from 1870 to 1874, 857 stock companies with a capital of $800,000,000 were established. The crash which followed was proportionate to the boom, and

[1] Tröltsche, *Die Neuesten Veraenderungen im Deutschen Wirtschaftleben.* Stuttgart: 1899, p. 23.

the effects lasted for ten or fifteen years. The recent period of expansion did not begin, therefore, until, at the latest, after 1890. In 1900 a crisis appeared and affected particularly the iron, coal, and machine industries, but the check was only temporary, and the country is again enjoying industrial prosperity.

The period between 1874 and 1890 may be regarded as a time of quiet preparation for the sudden industrial expansion which we are now studying. Conditions were forming which needed but the appearance of a new spirit of enterprise to bring about a splendid blooming-time for industry. The impulse was especially given by the electrical and the chemical industries. The introduction of electricity in lighting and traction and as motive power in factories created a demand for machinery, and indirectly for other products, which quickened all industry.

In the short period between the industrial census of 1882 and the last one in 1895, the relative decline of agriculture as compared to other industrial occupations was, according to the percentage of the industrially active population engaged in them, as follows: [1] —

	1882	1895
Percentage engaged in agriculture	42.5%	35.7%
Percentage engaged in manufacturing and building	35.5	39.12
Percentage engaged in trade and commerce	10.0	11.52

In Great Britain the distribution is as follows: [2] —

	1841	1895
Engaged in agriculture	37.8%	15.1%
Engaged in manufacturing and building	34.8	53.7
Engaged in trade and commerce	7.6	9.9

Since 1895 the shifting of the population from agriculture to manufacturing and commerce has to all appearances gone on more rapidly than before in Germany. At

[1] Von Halle, *Volks- und See-Wirtschaft*, p. 26.
[2] Mulhall, *Dictionary of Statistics*.

the beginning of the century at least three fourths of the population was agricultural, and at the end only one third.

The population of the area now included in the German Empire has grown during the nineteenth century as follows: [1] —

1816	24,833,000
1850	35,312,000
1870	40,805,000
1904	56,614,000

The movement of the population from the country to the towns and cities is one of the signs of the change from an agricultural to an industrial state. The proportion between the rural and urban dwellers has altered since 1871 as follows: —

	1871	1900
Urban population	36%	54%
Rural population	64	46
	100	100

In England, excluding Ireland and Scotland, the percentages have changed thus: —

	1891	1901
Urban population	75%	77%
Rural population	25	23

Development of the Home Market

The discussion of the recent expansion of German trade and industry by English writers has been so involved with warnings to English industry of the encroachments of the rival in the field, that English-speaking peoples have been impressed with the idea that the German industrial progress of the past decade is predominantly a matter of increasing foreign trade. It comes as a surprise, therefore, when we hear from so good an authority as Professor Sombart that "the development of the last decade has shown, at least for German industry, a decrease of the share of foreign trade relatively to the total indus-

[1] *Statistisches Jahrbuch für das Deutsches Reich*, 1904, p. 2.

trial activity." [1] That is to say, the domestic market has developed at a more rapid rate than the foreign market.

The increase of production from 1882 to 1895 has been estimated by statisticians working on the basis of the industrial censuses of those years at from 40 to 50 per cent. The imports and exports of both raw materials and manufactured goods averaged annually during that period (1882–1895) as follows: [2] —

IMPORTS INTO GERMANY

(*In million marks*)

	1894–96	*Increase over* 1881–83
Raw materials	3010.0	933.7
Manufactured goods	1111.8	70.6
	4121.8	1004.3

EXPORTS FROM GERMANY

(*In million marks*)

	1894–96	1881–83
Raw materials	827.4	decrease 111.4
Manufactured goods	2439.8	increase 234.3
	3267.2	" 122.9

From these statistics it may be seen that the total increase of exports from 1882 to 1895 amounted to but 4.4 per cent, and the export of manufactured goods alone, to less than 10 per cent.

The iron and steel industries are not only the ones in which the recent expansion has been most rapid, but they may also be regarded as forming the substantial basis for the growth of many other industries which use iron and steel as raw material, as for example, of the electrical industry. The production of pig-iron has increased from about three million tons in 1880 to eight and a half in 1900; in 1880 the excess of exports over imports of iron products was 29.3 per cent of the whole production; in

[1] *Die Deutsche Volkswirtschaft im XIX. Jahrhundert*, p. 428.
[2] See Von Halle, *Interessen des Deutsches Reichs.*

1900 this excess was only 7.3 per cent.[1] Therefore we are face to face with the interesting conclusion that practically all this enormous increase of production of five and a half millions of tons of pig-iron found a market inside the German frontiers.

The chemical industry is another which has often been referred to by the English writers in proof of the rapid progress of the German in the world market. The increase of exports in this industry from 1882 to 1895 was 38.2 per cent in weight. In default of statistics of total production in this branch, we can nevertheless roughly indicate the growth of the industry by reference to the increase in the number of employees. It may fairly be assumed that in the course of thirteen years of improvement and invention the amount of product per employee had increased, and the number of employees having increased 60.5 per cent, the total amount of product must have increased at least that much. Therefore we may conclude that the home market for chemicals has grown faster than the foreign.

Woolen and cotton goods stand at the head of the list of exports according to value. The following tables show not only the increase of production, but also the decrease in the proportion of exports to the total quantity manufactured: [2] —

Years averaged	*Cotton goods produced*	*Export*	*Percentage exported*
1836–40	17,897 tons	4,460 tons	24.9%
1851–55	34,963	7,283	20.8
1856–61	49,987	9,157	18.3
1880	84,000	21,300	25.6
1897–99	189,450	35,300	18.6
	Woolen yarn consumed	*Export*	*Percentage exported*
1840	21,000 tons	3,250 tons	15.5%
1860–61	42,000	12,500	29.8
1880	66,000	21,800	33
1900	156,000	29,300	18.7

[1] Sombart, *Die Deutsche Volkswirtschaft im XIX. Jahrhundert*, p. 431.
[2] *Ibid.* p. 432.

These statistics, taken from the most important of the export industries, are sufficient to indicate the great relative importance of the domestic compared with the foreign trade. The industrial progress of Germany has meant the economic expansion of the whole country. From whence comes this great demand? The fact that there were almost twenty million more people in the empire in 1904 than in 1870 accounts for much of the increase of demand directly. More of the new demand, however, comes from the increased consuming power of the people which accompanies industrial development. Technical progress in manufacturing and transportation cheapened prices, cheaper prices stimulated demand, which in turn led to production on a large scale, lower cost of production, and eventually still lower prices. The technical progress, which was the primary cause of this series of causes and effects, was at first almost completely borrowed from England. Spinning and weaving machinery, processes in iron and steel manufacture, steam engines and railways, were merely imitations of English originals.

Germany secured her first foothold in the foreign markets because she could make imitations of high-grade English wares, and could offer them at cheaper prices on account of their poorer quality. In his report Professor Reuleaux, who represented Germany at the Philadelphia Centennial in 1876, said: —

"In the industrial field we have met a defeat equal to a second Sedan. A united and regenerated Germany ought to occupy the first place in production and to surpass other nations. The contrary has happened; German industry produces only cheap and nasty articles. She has made no progress either in taste or invention."[1]

It is this cheapness, even at the expense of quality, which developed the great home market, for Germany was a

[1] Blondel, *L'Essor Industriel et Commercial du Peuple Allemande*, p. 152.

poor country thirty years ago, and even to-day the German customer is a much more economical buyer than the Englishman or the American; economy is a fixed habit with the German.

The change brought by industrialism into the economic life of the people has been another cause of the extension of the home market. Under the handicraft system of industry, the individual was much less dependent on the market for the necessities and comforts of life. The peasant raised on his land his food and the raw materials out of which his family made clothing and other goods. Whatever outside assistance was needed was usually paid for in produce. The peasant rarely went to market either as buyer or as seller. Much of the business of the handicraftsman was custom work, wherein the customer furnished the raw material and paid only for the labor, and for that sometimes in goods rather than in money. The process of creating the home market for factory-made goods was naturally slow among a conservative population, and only the tremendous cheapening of price forced the people into dependence on the market.

One great factor in lowering the prices of goods was the cheapening of transportation. The construction of railways was prerequisite to the development of the home market, except for the very small portion of the country which could be served by rivers and canals. The backwardness and conservatism of the German of the middle of the century is nowhere more clearly shown than in the slowness with which he took advantage of the railroad for his industrial development.

The comparative growth of the railway mileage of Great Britain, Germany, and the United States is shown by the following table: —

LENGTH OF RAILWAY LINES

(*In miles*)

	1840	1850	1860	1870	1887	1903
Great Britain	838	6,620	10,430	15,540	19,810	22,152
Germany	341	3,640	6,980	11,730	24,270	32,477
United States	2,820	9,020	30,630	53,400	156,080	198,768

The difference between the development of the railways in Great Britain and in Germany is accentuated when we recall the small area and the short distances in the former country, together with the coastwise transportation which had already an established trade, and against which the railroads had to compete.

Before the consolidation of the German States into an administrative whole, little could be done to improve the backward and unsatisfactory conditions prevailing in the transportation systems, both land and water. The assent of a dozen petty governments had to be secured before a line two or three hundred miles long could be constructed.

Transportation facilities are the very foundation of the industrial prosperity of any country. The same necessities which compelled the establishment of the Zollvereine and uniform standards of weights, coinage, and measures, demanded also a uniform system of transportation. The rapid extension of railway mileage between 1865 and 1880, when in fifteen years the length of German railways increased from 8687 to 20,690 miles, or 140 per cent, must be attributed largely to the federation of the states. Since the founding of the empire, the government has been keenly alive to the advantage of a complete and unified system of internal transportation, both by rail and water.

Private and state ownership of railroads developed side by side in Germany. The lack of private capital and initiative often forced the governments to construct lines when the need became great. In Bavaria, in 1856, the state railways were turned over to private companies. In

the period of the sixties, the *laissez-faire* ideas were strong in Germany, and most people were in favor of private ownership. But after the founding of the empire, a gradual change took place ; the Manchester theories had never completely driven out of the German mind the belief in state control, and the tendency to depend upon the state.

The importance of railroads from a military point of view, which had been demonstrated in the last war, together with the fiscal necessities of the new empire, induced Bismarck to make the attempt to unify all the railroads of the empire under the control of the imperial government. The refusal of the larger states to surrender the administration of their railways shattered this plan, but Prussia proceeded to nationalize her lines, and her example was followed by all the other states.

The purpose of Prussia in nationalizing her railways was not merely military and fiscal. She proposed a definite policy of assistance to industry, and has used her railroads to attain this end. First, she abolished those abuses which inevitably appear when railroad management is in the hands of private companies, and even sometimes under state control: rebates to favored shippers, lack of facilities for cheap through traffic, expensive service, and many other points where the interest of the companies diverges from that of the public.

Prussia has not hesitated to make use of cheap rates in promoting particular interests which needed assistance. For instance, when there was a movement to extend German ship-building, she readily granted important concessions in freight rates on raw materials for ship construction. In combination with the steamship companies of Hamburg, the government makes a very low combined rail and sea freight rate from inland parts of the empire to ports in the Levant and East Africa, which induces shipment by German steamship lines in preference to others.[1]

[1] *British Consular Reports*, 1899.

At the present time, state ownership of railroads is almost universal in the German Empire. In 1904 only 2807 miles of broad-gauge private lines existed. Out of the total revenue of the different states, which amounts to about $1,155,000,000 annually, the profits from the railroads contributed $461,940,000, or about 40 per cent. Unfortunately for the development of the railroads, the governments have come to depend on this source of revenue, and expect the railroad administration to provide it each year. Thus it often happens that needed improvements or extensions are sacrificed to the fiscal necessities of the states.

The larger states, Prussia, Bavaria, Würtemberg, Baden, for example, still control their own lines; and while as a rule there is harmony in the administration of through traffic, yet there sometimes develops friction between the various systems just as between large companies. For instance, for some time Prussia discriminated against the Saxon lines, and routed freight in a roundabout way, to the disadvantage of the latter.

The passenger rate in Prussia is: First class, 8 pfennigs; second class, 6 pfennigs; third class, 4 pfennigs; fourth class, 2 pfennigs; soldiers and workingmen (the latter under certain restrictions), 1 pfennig per kilometre. Expressed in the American equivalent, this would be, first class, $3\frac{1}{3}$ cents per mile; second class, $2\frac{1}{2}$ cents; third class, $1\frac{2}{3}$ cents; fourth class, 1 cent; soldiers and workmen, $\frac{1}{2}$ cent per mile. This rate is for passage on local trains; for express trains a slightly higher rate prevails: First class, $3\frac{1}{2}$ cents per mile; second class, $2\frac{3}{5}$ cents; third class, $1\frac{3}{4}$ cents. Fourth class exists only in Prussia, and there are frequent suggestions for its abolition.

The recent development of both freight and passenger traffic is shown by the following tables: [1] —

[1] *Statistisches Jahrbuch für das Deutsches Reich*, 1904, p. 67.

PASSENGER TRAFFIC

	Number of persons carried	*Passenger-kilometer*
1893	521,479,000	12,552,000,000
1902	882,988,000	21,028,000,000

FREIGHT TRAFFIC

	Number of tons moved	*Ton-kilometers*
1893	244,179,000	24,661,000,000
1902	364,629,000	36,670,000,000

The cheapening of freight rates since 1893 is indicated by the following table showing the income of the railroads per ton of freight hauled one kilometer for the two classes of freight. The fast-freight service corresponds to our separately administered express service.[1]

	EXPRESS FREIGHT	ORDINARY FREIGHT
	One ton per kilometer	*One ton per kilometer*
1893	24.47 pf. ($.095 per mile)	3.79 pf. ($.014 per mile)
1902	17.01 (.067 " ")	3.52 (.013 " ")

A comparison of the railroad business of Great Britain, Germany, and the United States is made in the following table (1901):[2] —

MILEAGE

Great Britain	22,202 miles
Germany	32,080 "
United States	198,346 "

TRAFFIC PER KILOMETER

	Passengers	*Freight (tons)*
Germany	413,820	651,590
United States	89,721	760,414

INCOME OF RAILROADS

	Passenger traffic per person per mile	*Freight traffic per ton per mile*
Germany	$.0103	$.013 (incl. express fr.)
United States	.0206	.0076

[1] *Statistisches Jahrbuch für das Deutsches Reich*, 1904, p. 68.
[2] *Ibid.* 1904, Anhang, p. 23.

The extension of railway mileage and the increase of freight transported indicates clearly the growth of the home market. The enormous cheapening of carriage charges has enabled the manufacturers and merchants to introduce their factory-made products into every corner of the empire at so cheap a price that the people can no longer afford to make their own goods. All classes have become more and more dependent on the market either to sell their products or labor, or to buy goods for daily consumption. Therefore the demand for large quantities of cheap, standardized goods has risen, and the conditions favoring the growth of industrialism and production on a large scale are present.

Development of the Foreign Market

Germany had 35,312,000 inhabitants in 1850, and 59,495,000 in 1904; an increase, therefore, of 24,183,000 in fifty-four years, a rate of increase exceeded only by the United States among the larger nations.

These 24,183,000 additional inhabitants increased the density of population of the country from 165 persons per square mile to 280 per square mile. That is to say, that 24,000,000 people must find room in a country already more densely populated then than the most crowded part of the United States is to-day, *i. e.* the North Atlantic States, and almost as densely populated as France is to-day with 185.5 persons per square mile.

A vast industrial change has of necessity accompanied this almost doubling of the population. In 1850 Germany exported food-stuffs and raw materials, and imported manufactured goods; now her principal exports are manufactured goods, and her imports are raw materials and food-stuffs. In this period she has changed from an agricultural to a manufacturing and commercial nation, a change which England made years earlier. The population of the country has long since grown beyond the

capacity of the soil to furnish a sufficient food supply, and the deficiency must be covered by imports from other countries. Thus Germany was forced to become an industrial country to employ her surplus labor, and indirectly to get a living for her people.

The following statistics show the nature of the foreign trade of Germany in 1903: [1] —

IMPORTS

	Value	*Percentage of whole import*
Raw materials for industry	$683,280,000	45.0%
Manufactures	290,373,000	19.1
Food-stuffs	471,700,000	30.9
Precious metals	76,550,000	5.0

EXPORTS

	Value	*Percentage of whole export*
Raw materials for industry	$294,100,000	23.8%
Manufactures	788,700,000	64.0
Food-stuffs	122,610,000	9.9
Precious metals	27,800,000	2.3

The foreign trade of Germany, like that of England, is not simply a matter of economic advantage; it is a matter of economic life and death. To feed her people she must get food from abroad; to get her food from abroad she must manufacture and sell in foreign markets goods representing in their value a large proportion of labor relative to raw material. A glance at the following lists of exports and imports will show how far this principle prevails. The articles are arranged according to their importance in 1903, the percentages showing the proportion which each bears to the whole value of the exports or imports respectively: [2] —

[1] *Statistisches Jahrbuch für das Deutsches Reich*, 1904, p. 98.

[2] Compiled from the *Statistisches Jahrbuch fur das Deutsches Reich*, 1880, 1894, and 1904.

EXPORTS ARRANGED ACCORDING TO IMPORTANCE

	1878	1893	1903
Cotton goods	3.2%	4.8%	5.9%
Woolen goods	4.5	5.7	4.8
Machines	3.1	2.0	4.5
Hard coal	2.8	3.2	4.3
Sugar	2.4	6.8	3.6
Coarse iron ware	1.4	2.0	3.4
Silk goods	2.4	4.7	3.2
Clothing	1.0	1.9	2.3
Dyes and colors	1.7	1.6	1.7
Fine iron ware	.3	.8	1.7
Books and pamphlets		1.6	1.6
Lacquered leather goods	1.7	1.3	1.6
Fine leather goods		1.6	1.2
Pictures and engravings	1.3	1.3	1.2
Grain and flour	12.9		1.2
Wool yarn	1.0	1.2	1.1
Silver and gold ware		.7	1.1
Toys		.9	1.0
Coke	.25	.9	1.0
Wheat	5.4		.05
Rye	1.0		.04

IMPORTS ARRANGED ACCORDING TO IMPORTANCE

	1878	1893	1903
Raw cotton	4.7%	5.1%	6.2%
Wool	5.8	5.6	5.7
Wheat	5.6	2.1	4.0
Barley	1.9	2.3	2.6
Gold		1.8	2.6
Raw silk	3.0	2.4	2.4
Coffee	4.5	5.2	2.3
Beef hides	1.5	1.2	1.9
Lumber		1.0	1.8
Eggs	.7	1.4	1.7
Raw copper	.5	.9	1.6
Horses	1.4	1.2	1.5
Timber		1.4	1.5
Corn	1.7	1.4	
Woolen yarn	2.1	2.8	1.4
Tobacco leaves	2.5	1.8	1.4
Lard	1.0	1.7	1.4
Petroleum	1.9	1.1	1.3
Chili saltpetre		1.6	1.3
Combed wool		.7	1.3
Rubber and gutta-percha	.2	.6	1.2
Iron ore		.5	1.2
Rye	3.8	.6	1.3
Grain and flour	16.0		10.0
Machines	1.5	.7	1.1
Cotton seed		1.1	1.0

The most important items of foreign trade are wool, cotton, and the manufactures thereof. Since Germany produces no cotton at all, and wool only as a by-product of sheep-raising, the main product of which is mutton, we may regard the exports of woolen and cotton goods as exports of the products of German labor, and scarcely at all as the exports of the product of German soil. Three fourths of the raw cotton imported is paid for by the cotton goods exported.

The item sugar is the one great exception in all the list of exports. Sugar is a food-stuff and practically an agricultural product, since the manufacture of the sugar from the beets is of less economic importance than the culture of the beets. The reasons why Germany can export sugar are: first, the intensive cultivation which the sugar-beet requires, thus employing a large amount of labor per acre of ground; and second, the peculiar adaptability of much of the German soil to this industry. The policy of the German government in paying a bounty on exports of sugar has artificially encouraged the development of the industry. Since 1893 the bounty having been withdrawn, and the price having been raised by the syndicate, the importance of sugar as an export has declined relatively from first place in 1893, to fifth in 1903, and absolutely from exports to the value of 209,200,000 marks in 1894 to a value of 186,700,000 marks in 1903.

The principal raw material of machinery is iron and steel, and these are the products of the most abundant raw material in Germany, most of the value of which is conferred by labor. Moreover, the value of machinery itself consists largely of labor, and the most of it of a very highly skilled class. Machinery, therefore, is an export which, for a country like Germany, is the most profitable, requiring for its production much labor, of which the country has an abundance, and little natural resources, which the country must carefully husband.

The export of hard coal is offset largely by a heavy import, so that the net export (balance over import) of hard coal amounts to about 2.5 per cent of the whole export instead of 4.2 per cent. Moreover, the large export in the years from 1899 to 1903 was due to an over-production by the mines during a period of business depression. Efforts are being made to curtail this over-production by a combination of the mine-owners, which in the future will no doubt hinder the export of coal.

As an item of foreign trade, grain has shown the greatest changes since 1878. In that year grain and flour made up 12.9 per cent of the exports and 16 per cent of the imports; in 1903 they had declined in importance to 1.2 per cent of the exports and 10 per cent of the imports. That is to say, that whereas in 1878 the surplus import of grain over export amounted to about 3 per cent of the whole imports, in 1903 the surplus amounted to over 8.5 per cent of the total imports.

It is very puzzling at first when one finds that the imports of grain have increased so little in twenty-five years, while all the time Germany is becoming more and more dependent on foreign countries for her bread-stuffs. This surprisingly small increase is explained when the great decline in the *export* of grain is taken into consideration. In 1878 5.4 per cent of the exports of Germany and 5.6 per cent of the imports consisted of wheat, and the surplus import of wheat amounted to less than $13,500,000; in 1903 the surplus import amounted to $56,650,000. The decline in the relative importance of the foreign trade in food-stuffs is explained by the tariff laws which have been enacted to relieve the severity of the Agrarian crisis. High duties have been laid on foreign food-stuffs to protect the agriculturists by artificially holding up the price against foreign and especially American competition.

Corn (maize) is an item of import which in 1878 was too small to be computed separately. In 1899 it was fifth

in importance among the imports, 85 per cent of it coming from America. In the last four years the heavy duty imposed has caused a decline in the import from $32,109,000 to $23,074,000. The high price of this cereal in the American market during the last few years no doubt is also largely responsible for the falling off of the import.

The increase in the general foreign trade of Germany as compared with that of Great Britain, France, and the United States is shown by the following table: [1] —

FOREIGN TRADE

(*In millions of dollars*)

		1884	1894	1902
German Empire	Import	$828.8	$1,010.8	$1,422.8
	Export	821.8	783.6	1,200.9
Great Britain	Import	1,915.4	2,005.4	2,591.1
	Export	1,453.5	1,344.5	1,712.6
France	Import	1,020.1	933.6	1,095.9
	Export	821.3	803.1	1,076.3
United States	Import	674.1	661.3	912.0
	Export	747.6	900.7	1,395.0

The statistics of Germany's foreign trade are not strictly comparable with those of other countries before 1894, nor are the later figures for Germany alone with the earlier, since the customs area has been changed. The great ports of Bremen, Hamburg, and Altoona were admitted to the Custom's union only in 1888, and after that date the figures for the imports have increased somewhat simply for that reason, while the figures for exports were very slightly affected.

The most important countries from which Germany imports goods and the share of each in the import trade for 1894 and 1903 are given herewith: [2] —

[1] *Statistisches Jahrbuch für das Deutsches Reich*, 1904, Anhang, p. 28–31.

[2] *Ibid.* 1904, p. 176.

	1894	1903
United States	12.4%	14.9%
Russia	12.7	13.1
Great Britain	14.2	13.2
Austria-Hungary	13.6	11.9
France (including colonies)	5.0	5.5
India	3.8	4.5
Argentine	2.4	4.3

The most important countries to which Germany exports goods and the relative share of each for 1894 and 1903 are as follows: [1] —

	1894	1903
Great Britain	20.8%	19.3%
Austria-Hungary	13.2	10.3
United States	8.9	9.1
Netherlands	8.0	8.2
Russia	6.4	8.1
Switzerland	6.2	5.9
France	6.2	5.3
Belgium	4.9	5.2

The United States is first in importance of all countries from which Germany imports goods, having since 1894 usurped the place occupied by Great Britain. Her exports to Germany have increased at a greater rate than those of any other country. This is explained by the fact that the bulk of these exports consist of raw materials for industry, and food-stuffs for which Germany, as she develops into an *Industrie-Staat*, must depend more and more upon foreign countries.

The principal articles of import into Germany from the United States were in 1903: [2] —

	Value	*Percentage of the total import from the United States*
Total import from the U. S.	$235,850,000	100.0%
Raw cotton	70,375,000	33.0
Crude copper	19,862,000	8.4
Wheat	18,937,000	8.0
Petroleum	17,599,000	7.5
Lard	17,678,000	7.5
Corn (maize)	12,849,000	5.3

[1] *Statistisches Jahrbuch für das Deutsches Reich*, 1904, p. 179.
[2] *Ibid.* 1904, chapter vii.

Turpentine and products	$6,855,000	2.8%
Oil cake and oil meal	5,069,000	2.1
Preserved and dried fruits	4,451,000	2.0
Oleomargarine	4,478,000	2.0
Cotton-seed oil	3,057,000	1.3

The United States furnishes about 70 per cent of Germany's import of raw cotton and about 83⅓ per cent of her import of wheat. Since 1900 the import of corn has decreased from $26,006,500 to $12,849,250 — over 50 per cent. The import of petroleum from the United States, which amounts to 80 per cent of the whole consumption of Germany, is entirely in the hands of one company, the Deutsche-Amerikanische Petroleum Gesellschaft. The size of the dividends, which were 38 per cent in 1901, 30 per cent in 1900, 45 per cent in 1899,[1] indicates that the monopoly of this commodity is nearly as profitable as in our own country. Naturally, the German company works in close harmony with the Standard Oil Company.

The United States is not so good a market for German goods as either Great Britain or Austria-Hungary, chiefly because of our high tariff duties. The important articles exported from Germany to the United States in 1903 were:[2]

	Value	*Percentage of the total export to the United States*
Total export to the U. S.	$117,300,000	100.0%
Cotton goods (including hosiery)	14,372,500	12.2
Cotton hosiery	6,595,000	5.6
Silk goods	9,881,500	8.4
Porcelain	6,016,500	5.1
Aniline dyes and dye-stuffs	4,237,000	3.6
Toys	4,172,750	3.5
Gloves	2,819,250	2.4

Shipping

There is nothing which so well illustrates the recent industrial progress of Germany as the growth of her

[1] *Handbuch der Wirtschaftskunde Deutschlands*, vol. iv, p. 64.
[2] *Statistisches Jahrbuch für das Deutsches Reich*, 1904. Compiled from chapter vii.

shipping. Since 1871 the tonnage of German steamships has increased 1447 per cent, or from 5 to 8 per cent of the whole steam tonnage of the world; in the same time the tonnage of the English steamships has increased 566 per cent, and of the French, 347 per cent. Despite the rapid growth in tonnage of the German steam shipping, it is still only one seventh as large as the English. The wonder of it is that the Germans have been able to make the progress they have against the competition of England, with all her advantages of harbors, colonies, and prestige. The infant shipping industry could not be sheltered behind a tariff wall against strong competition like the iron and steel industries, but it had to win its way by its own strength.

GROWTH OF THE GERMAN SEA-SHIPPING [1]

	SAILING VESSELS			STEAM VESSELS		
	Number	*Net tons register*	*Persons engaged*	*Number*	*Net tons register*	*Persons engaged*
1871	4372	900,361	34,739	147	81,994	4,736
1891	2675	693,415	17,898	896	723,652	22,317
1900	2288	536,399	13,268	1293	1,150,159	31,027
1903	2232	498,502	12,516	1545	1,622,439	42,984

The great bulk of German shipping is confined to two harbors, Hamburg and Bremen, both on the North Sea. In 1901 846 vessels (both sailing and steam) of 1,601,994 tons belonged to Hamburg, and 513 ships of 875,598 tons to Bremen. Two companies own most of the larger vessels of these ports, — the Hamburg-American in Hamburg, and the North German Lloyd in Bremen. They are by far the largest steamship companies in the world. The Hamburg-American line owns 125 vessels of 619,916 tons, and the North German Lloyd 115 vessels of 497,344 tons. These lines have made a specialty of transatlantic business, and in 1904 they carried 40 per cent of the passengers crossing between America and Europe.

One steamship alone of the North German Lloyd line,

[1] *Statistisches Jahrbuch für das Deutsches Reich*, 1904, p. 81.

the *Kaiser Wilhelm II* (tonnage 19,500), has a greater tonnage than the whole Bremen fleet in 1825 (14,600 tons) and about half of the Hamburger tonnage in 1840 (39,670 tons), the fleet consisting of 211 ships.

The following table affords a comparative view of the shipping, both sea and internal, of the various countries in 1901–03: [1] —

	STEAM VESSELS		TOTAL SHIPPING		REMARKS
	Number	*Net tons register*	*Number*	*Net tons register*	*Over*
Germany	1545	1,622,439	4,045	2,203,804	17.6 tons
Russia	810	391,697	3,188	664,208	20 t. B.
France	1330	548 921	16,021	1,217,614	exc. 9 fishb.
Great Britain	9770	8,098,760	20,043	10,030,610	15 t. B.
United States	8054	3,418,088 (gross tons)	24,425	6,097,345 (gross tons)	5 t. N.

The traffic of sea ships in the German ports compared with that of other countries is shown by the following table. The figures do not include commerce between ports of the same country; colonies are regarded as foreign countries (1902).[2]

	ARRIVALS		DEPARTURES	
Ports of	*Belonging to the country*	*Foreign*	*Belonging to the country*	*Foreign*
	(*Registered net tons*)			
German Empire	7,747,036	7,749,690	7,670,177	7,715,628
Great Britain	32,302,436	17,317,681	32,600,471	17,652,131
France	4,917,212	14,123,296	5,359,262	14,244,245
United States	4,019,871	20,341,564	3,955,515	20,286,589

From this table it may be seen that just about half the German shipping is carried by German vessels, while two thirds of the English commerce is carried by English ships.

[1] *Statistisches Jahrbuch für das Deutsches Reich*, 1904, Internationale Übersichten, p. 24.

[2] *Ibid.* 1904, p. 25.

Postal subsidies are granted by the German government to two companies, — the North German Lloyd and the East African Steamship, — to the amount of $17,027,500. This subsidy is paid on the condition that the steamships are constructed in accordance with the Admiralty requirements so as to be adapted for use in time of war as cruisers.

CHAPTER IV

GROWTH OF THE VARIOUS INDUSTRIES

As in the case of Great Britain, the industrial strength of modern Germany is based on her iron and steel manufactures. In the production of pig-iron, Germany has always been at a disadvantage in competing with England; her ore and coal are not so easily or so cheaply brought together, and a great deal of her ore contains much phosphorus, which lowered its quality until the discovery of the Thomas-Gilchrist process in 1868.

It is of great importance that the ore and coal deposits should either lie in close proximity, or that they should be situated within reach of cheap transportation. The ore and coal of England are most favorably situated, lying close together near the coast. The importation of either of these raw materials is thus made easy in case of necessity; and even if the ore or coal deposits of England should run short, her furnaces could still exist by using foreign ore or coal. Dr. Allendorf [1] estimates that the item of transportation forms 9 to 10 per cent of the cost of production of English pig-iron, while for German pig-iron the freight charges on the raw material amount to from 28 to 30 per cent. The relative positions of the iron-ore and coal deposits of Germany are indicated on the map accompanying this chapter.

The iron industry of Germany is so dependent upon the railroad transportation that until the latter had reached a high stage of cheapness and effectiveness, the competition of the English iron was a great obstacle in the way

[1] *Handbuch der Wirtschaftskunde Deutschlands*, vol. iii, p. 343.

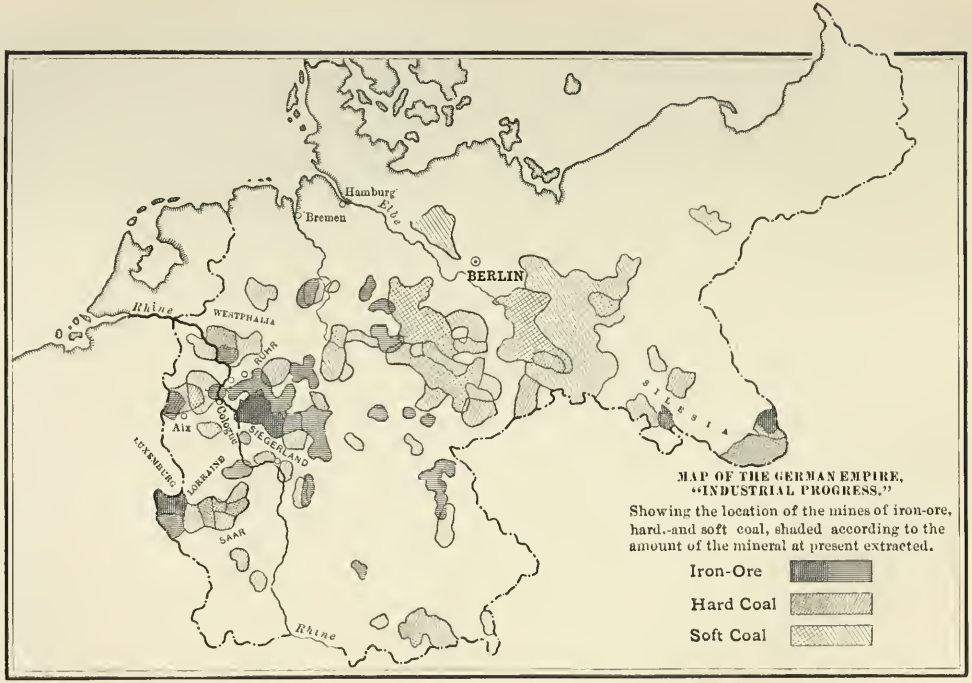
of the development of the industry in Germany. Besides the disadvantages which were common to all industry in Germany in the middle of the century, the iron industry since 1794 had been subject to the *Direktions Princip*, a law which gave to the governmental officials a comprehensive control over the mines.

The Free-trade era from 1874 to 1879 postponed still further the development of German iron production. The following figures show statistically the effect of that policy, as well as the proportion of the German market which was supplied by foreign and especially English producers: [1] —

	Domestic Production	*Imports*	*Rate of Tariff*
1872	1,927,000 tons	663,000 tons	62½ cts. per ton
1873	2,174,000	743,000	From Oct 1,
1874	1,856,000	549,000	free
1878	2,119,000	485,000	
1879	2,201,000	388,000	From June 1,
1885	3,647,000	223,000	$2.60 per ton
1886	3,499,000	169,000	
1890	4,626,000	404,000	
1895	5,433,000	200,000	
1899	8,095,000	569,000	
1900	8,469,000	741,000	

One of the most important factors tending to promote the industry from the beginning of the seventies on was the invention of the Thomas-Gilchrist process, by which the phosphorus contained in some ores could be separated from the iron, and thus not only rid them of an element which had heretofore destroyed much of their value, but also yield as by-product a valuable commercial fertilizer. It was the German ores, especially those of the Lorraine district, which profited most from this process, and a grave disadvantage was turned into a positive advantage, not only for the iron industry but also for agriculture. Three fourths of Germany's need for phosphoric acid,

[1] *Handbuch der Wirtschaftskunde Deutschlands*, vol. iii, p. 357.


Hamburg
Bremen
Elbe
BERLIN
Rhine
WESTPHALIA
RUHR
Aix
LUXEMBURG
LORRAINE
SAAR
SIEGERLAND
SILESIA
Rhine
MAP OF THE GERMAN EMPIRE,
"INDUSTRIAL PROGRESS."
Showing the location of the mines of iron-ore, hard.-and soft coal, shaded according to the amount of the mineral at present extracted.
Iron-Ore
Hard Coal
Soft Coal

used especially as an artificial fertilizer, is covered by this by-product of the iron furnaces, the annual yield of which is 450,000 tons.

The oldest iron-ore district of the country is the Siegerland district near the Rhine River. In earlier times the luxuriant forests near the mines furnished the charcoal used in smelting, so that neither long transportation of ore nor fuel was necessary. Now the ore of this locality is shipped to districts having hard-coal mines, especially to the Westphalian.

The Lorraine ore has a smaller percentage of iron than that produced by the Siegerland mines, and contains a high percentage of phosphorus. This district now furnishes 58 per cent of the German supply. It is estimated that the deposits here amount to three thousand million tons, which at the present rate of extraction will last for 700 years. The ore of this district is as a rule smelted with coal brought from the Saar. The close proximity of the coal and ore of Lorraine will, according to Dr. Paxmann, cause the transfer of the centre of the iron industry in the future from the Rhine-Westphalia district hither.

The iron industry of the Rhine-Westphalia district centres around Dortmund, and about 40 per cent of all the pig-iron produced in Germany is smelted there. Besides the ore from Siegerland and Nassau, large quantities are imported from Sweden, Belgium, Holland, and Spain. The excellent coking-coal of this district was the original cause of the founding of the iron industry in this place.

The Silesian district lies on the eastern frontier, and its situation with regard to transportation and markets is far inferior to that of Westphalia; but on the other hand, it possesses the advantage of having its coal and ore lying close together; the coal, however, on account of its impurities, is of less value for coking. The ore is very rich in iron, and the deposits lie close to the surface

and directly over the coal mines. Ten per cent of the total pig-iron production comes from this district.

In the production of pig-iron and steel, Germany has overtaken Great Britain within the last few years, and stands second only to the United States. The following table shows the development of the industry in Germany, Great Britain, and the United States: —

PRODUCTION OF PIG-IRON [1]

(*In thousand tons*)

	1865	1880	1890	1900	1903
World production	9,481	18,331	27,627	40,837	——
United States	845	3,896	9,353	14,009	18,298
Great Britain	4,896	7,802	8,033	8,909	8,952
Germany	975	2,728	4,658	8,520	10,018
France	1,290	1,733	1,962	2,699	2,828

PRODUCTION OF STEEL

(*In tons*) [2]

	1880	1895	1900
World production	4,233,420	14,898,082	27,859,882
United States	1,287,983	6,312,074	10,689,640
Germany	624,418	2, 830,468	6,646,869
Great Britain	1,341,690	3,365,523	4,904,238
France	388,844	714,523	1,660,118

Since 1888 the consumption of iron per capita in the German Empire has doubled, and since 1861 has increased fivefold. The rapid increase since 1888 has been due in large part to the development of the electrical industry. Not only has a demand for iron in the manufacture of electrical machinery arisen, but the employment of electrical power has brought about an extensive building of street railways, creating a demand for steel rails.

CONSUMPTION OF PIG-IRON PER CAPITA IN GERMANY

1861–1864	50.4 pounds	1891	139.0 pounds
1873	144.6	1900	262.9
1882	103.0		

[1] *Handbuch der Wirtschaftskunde Deutschlands*, vol. iii, p. 119. The figures for 1903 are taken from the *Statistisches Jahrbuch für das Deutsches Reich*, 1904, International Übersicht, p. 15.

[2] Sombart, *Die Deutsche Volkswirtschaft im XIX. Jahrhundert*, Anhang, p. 31.

The year 1901 brought a severe crisis to the industry, made more perceptible on account of the heavy over-production of the preceding years. The consumption sank from 262.9 pounds per capita in 1900 to 178.4 pounds in 1901, which was below the average for the decade 1891–1900. The producers were forced to take combined action to prevent over-production, and the result was the establishment of strong syndicates, which to-day completely control the market. The fact that these syndicates grew out of an urgent necessity, unlike our United States Steel Corporation, which was founded in a time of prosperity, has caused them to be regarded with less disfavor by public opinion, and no hostile legislation has yet been attempted against them.

Mining

One fifth of the industrially active population of Germany are engaged in the mining and smelting industries. They are almost entirely in the hands of large concerns. Four fifths of all the persons engaged in them are employed by firms having more than 200 workmen. The quantity and value of the mine products of the country may be seen from the following table: [1] —

Average for the Years	*Million Tons*	*Value in Million Marks*
1861–65	26	151
1871–75	51	337
1876–80	60	346
1890	104	725
1898	148	937
1902	174	1235

The total amount for 1902 was distributed among the various mine products as follows: [2] —

	Tons	*Value*
Hard coal	107,473,900	950,517,000 marks
Soft coal	43,126,300	102,571,000
Rock salt	1,010,400	4,699,000

[1] Huber, *Deutschland als Industriestaat*, p. 279. Figures for 1902 from *Statistisches Jahrbuch für das Deutsches Reich*, 1904, p. 47.

[2] *Statistisches Jahrbuch für das Deutsches Reich*, 1904, p. 47.

	Tons	*Value*
Potassium salts	3,285,000	40,006,000 marks
Iron ore	17,963,600	65,731,000
Lead	167,900	13,436,000
Zinc ore	702,500	29,911,000
Copper ore	761,900	20,431,000
Silver and gold ore	11,700	1,389,000

Coal is by far the most important of the mine products. The production of coal in Germany as compared with that of other countries is as follows: [1] —

	Germany	*Great Britain*	*United States*
1891	94,253,000 tons	188,456,000 tons	152,921,000 tons
1902	150,500,000	230,739,000	273,515,000

The oldest hard-coal producing district of Germany is that of the Rhine-Westphalia. The supply there is estimated to be 129,300,000,000 tons, which, with an annual production of 100,000,000 tons, will last for 1293 years.

Second in importance but first in the amount of hard coal present is the district of Upper Silesia. It is estimated that there is more coal there than in the whole of the United Kingdom. A German authority calculates that there are 62,800,000,000 tons of hard coal lying within 1000 meters of the surface in this district, 101,550,000,000 tons within 1500 meters of the surface, and 140,800,000,000 tons within 2000 meters of the surface.

Smaller hard-coal districts are those of Lower Silesia and Saarbrücken, the deposits in the latter amounting approximately to 14,000,000,000 tons.[2]

From these estimates of the size of the coal deposits it will appear that Germany is assured for a long time to come of the endurance of the basis of her industrial life.

The Manufacture of Machinery

The great increase in the consumption of iron and steel in Germany since 1890 indicates a large expansion

[1] *Statistisches Jahrbuch für das Deutsches Reich*, 1904, p. 15, Anlage.
[2] These figures are collected in the *Handbuch der Wirtschaftskunde Deutschlands*, vol. iii, pp. 6–9.

of the machine industry, for not only has the production of such a vast quantity of iron and steel required the employment of much machinery in mining and smelting, but a great part of the iron and steel consumed has gone into the manufacture of machinery, or into the construction of railroads, bridges, and buildings in which machinery is liberally used.

The Germans have not had the reputation of being great mechanical inventors, and they are certainly inferior to the Americans in this respect, yet nevertheless they are in the front rank as a machinery-manufacturing nation. They have shown themselves exceedingly quick in adopting the improvements of others. Germany is a splendid market for American machinery of the newest types, but American manufacturers have learned that it is only a short while until the Germans themselves are making the same machinery, usually at a cheaper price. In this matter they show themselves more enterprising than the English.

The well-informed author of the articles in the *London Times* (autumn, 1903) on "German Industry," says: —

> " The verdict of a highly competent authority who has visited every industrial exhibition for the last fifteen years, and who knows the United States as well as England and other parts of Europe, will suffice. 'It was,' he said, 'the finest exhibition of tools and machinery I ever saw ' " (referring to the exhibition of German products at Düsseldorf in 1902).

England, however, is still able to maintain her supremacy in the manufacture of textile machinery, and the United States in the manufacture of most kinds of agricultural machinery.

The greatest growth of the machine industry has taken place since 1895, but the latest statistics available showing the number of employees are those of the last industrial census taken in that year. Between the two censuses of 1882 and 1895, the growth has been: —

	1882	1895	*Increase*
Concerns manufacturing machinery	82,874	87,879	6%
Employees	356,089	582,676	63.7

The small increase in the number of firms relative to the large increase in the number of employees indicates the great concentration which has taken place in this industry. There has been practically no increase in the number of firms employing less than ten people, but those employing more than fifty have almost doubled in number.

Since 1879 the amount of steam power employed in Prussia has increased as follows: —

	1879	1901
Number of steam engines	29,895	75,958
Capacity in horse power	887,784	3,709,662

To-day there are in the German Empire 18 locomotive factories with an annual capacity of 1400 locomotives, and employing about 20,000 men. In 1903 the export of locomotives and traction engines amounted to $7,603,000, over 25 per cent going to Russia and Spain; each of these countries took about one million dollars' worth. The market for German locomotives in Russia has declined since 1896, when the exports amounted to over two million dollars. The competition of the United States was responsible for this, especially because the American firms could offer much quicker delivery than either the Germans or the English.

It is in the electrical industry that Germany has made her greatest progress, one of the direct results, no doubt, of her excellent technical schools. In 1880 electricity was commercially employed only in telegraphy, and in 1882 the whole number of persons employed in the industry was too small to be separately enumerated. In 1895 there were 15,000 people engaged in the industry, and the number at the present time is estimated at 50,000. The capital invested is estimated at two billion dollars (Huber). This tremendous and rapid growth, which has placed

Germany second only to the United States in the industry, was extraordinarily stimulating to other branches, and accounts for not a little of the boom from 1896 to 1900.[1]

One of the principal uses of electricity is in street railways. In 1902 over 100 German cities had electric street railways, with a length of 2200 miles, and representing an investment of a billion dollars. Germany has over one third of all the electric street railways in Europe and over half of the total mileage. Ninety-one per cent of all the electric roads of Europe (excluding Great Britain) were built by German firms. The electric roads have not yet begun to compete with the steam roads for long-distance traffic, as in the United States.

The six largest electrical companies have an invested capital in stocks and bonds of over $80,000,000, which has increased since 1894 from $16,000,000.

The Allgemeine Elektrizitätsgesellschaft has three large factories employing 17,000 men. Their sales for the year 1899–1900 included 16,000 dynamos of 208,000 H. P. Up to that year, the company had built 250 electrical plants. Their field includes all Europe, and extends to countries beyond the seas. They have established a branch company, with $2,500,000 capital, to handle their business in Argentine and Chili.

The export of electrical machinery in 1903 was $5,000,000. Great Britain is by far the best customer, taking in that year over twenty-five per cent of the whole export.

Germany still imports more agricultural machinery than she exports, although in the last four years the im-

[1] MANUFACTURE OF ELECTRICAL MACHINERY IN THE UNITED STATES

	1880	1890	1900
Number of concerns	76	189	580
Capital invested (in million dollars)	1.5	19.8	86
Number of employees	1271	8802	40,890
Value of product (in million dollars)	2.7	19.2	92
Wages and salaries (in million dollars)	.7	5.4	24.9

ports have decreased more than half (from $6,929,000 in 1900 to $3,100,000 in 1903). Almost two thirds of her import comes from the United States, and over half her export goes to Russia.

The Chemical Industry

In the chemical industry Germany is easily the first nation of the world. This industry affords the best illustration of the recent progress, and reveals more clearly than any others the causes which have made that country industrially great. The importance of the manufacture of chemicals can be appreciated when we learn that the total value of the annual product is over $300,000,000, which is more than the value of all the machinery manufactured.

This splendid industry is the direct product of German technical education. The beginning was made when Professor Justus V. Liebig founded the first chemical laboratory in 1827, at the University of Giessen. The convincing success of this experiment led the several state governments to found and maintain advanced schools for scientific study. These technical schools and university laboratories may be regarded as the corner-stone of the nation's industrial greatness, and the whole foundation of its supremacy in the chemical industry.

For the manufacture of crude chemicals, Germany possesses an abundant supply of raw materials, salt, sulphur, and limestone, together with the coal necessary for heat and power.

The capital invested in this industry in 104 of the largest stock companies amounted in 1898 to 295,373,100 marks ($71,003,000), on which a dividend of 39,921,970 marks ($9,115,800) was paid, an average of 13.52 per cent, which was slightly higher than the average for the previous ten years.

The most interesting branch of the chemical industry

is the manufacture of dye-stuffs from coal-tar. It is in this field that the most recent and brilliant achievements of the German chemists have been won. In 1860 all the dyes used were organic, and Germany was almost entirely dependent on foreign countries for her supply. The annual import of dyes at that time cost the country 50,000,000 marks ($12,150,000). By 1900 the conditions had so changed that the import had sunk to almost nothing, and the export, on the other hand, had risen to 100,000,000 marks ($24,300,000). Almost without exception, the discovery and production of coal-tar dyes has remained in the hands of the Germans.

The raw material used is the bi-product of gas and coke manufacture, which was formerly a worse than useless waste. Now Germany not only utilizes all the coal-tar produced in that country, but imports large quantities in the form of benzole from Great Britain, Belgium, and Austria-Hungary. All this import and more is sold back to these countries again, multiplied many times in value, in the shape of dyes.

Four fifths of all the world's products of dye-stuffs, as well as a large proportion of the medical preparations derived from coal-tar, are made in Germany. The annual production of these dyes amounted, according to the statement of the Reichsamt des Innern in Germany in the year 1897, to the value of 120,000,000 marks.

For centuries indigo had been one of the great items of import to the textile-producing countries. In 1892 the German Empire imported 3,556,740 pounds of natural or vegetable indigo, valued at $4,450,000. The discovery of a process for making artificial indigo, made by a Münchner chemist, Dr. Bayer, in 1897, has completely revolutionized this trade, for in 1902 the import of vegetable indigo had decreased to 833,000 pounds, while the export of artificial indigo amounted to 18,308,000 pounds in 1903.

Dr. Bayer's discovery, which had such an important effect on a great industry, consisted of a process for the making of artificial indigo, called alizarene, from a coal-tar product, anthracene. As the result of this one discovery, Germany is not only relieved from the necessity of importing this dye-stuff at a great expense, but she is also able to realize from its export a very considerable national profit.

This is but one instance of the advantage Germany has derived from the labors of her army of scientifically trained chemists. While it may be the most spectacular, it is by no means the most important. The sugar-beet industry owes a large debt to the agricultural chemists, who have been able to raise the percentage of saccharine content of sugar-beets from 5.7 per cent in 1840 to 13 per cent at the present time.

The importance of the manufacture of dyes and the number of chemists employed are indicated by the following list of the largest companies engaged in the industry, their foreign branches, workmen employed, and the capital invested: [1] —

Name of Company and Branches	*Number of Chemists, etc.*	*Workmen*	*Capital*
Aktiengesellschaft für Anilin-fabrication in Berlin.	55 chemists 10 engineers	1550	$2,000,000
Branches: St. Fons, Fr.; Moscow and Libau, Russia.	21 experts 150 officials		
Badische Anilin- u. Soda-fabrik in Ludwigshafen.	148 chemists 75 experts	6300	5,000,000
Branches: Neuville, Fr.; Butirki, Russia.	305 officers, etc.		
Leopold Cassella & Cie, Frankfurt a. M.	80 chemists and experts	1800	
Branches: Lyons, Fr.; Riga, Russia.	170 officers		
Farbenfabriken, vorm. Friedr. Bayer & Cie.	145 chemists 27 engineers	4200	4,750,000
Elberfeld. Branch: St. Flers, Fr.	148 experts		
Farbwerk Mühlheim. Mühlheim. Branch: Lyons, France.	450		500,000

[1] *Katalog der Sammelaustellung der deutschen chemischen Industrie auf der Weltaustellung zu Paris*, 1900.

Farbwerke vorm. Meister, Lucius & Brünig. Höchst a. M. Branches: Creil, France; Moscow, Russia.	129 chemists 36 engineers 211 officers	3500	$4,000,000
Kalle & Cie. Bieberich a. Rh. Br.: Warsaw and New York.	128 chemists, etc.	500	
K. Oehler. Offenbach a. M.	80 chemists	450	
G. Siegle & Cie. Stuttgart.	44 chemists	106	

Textiles

Before the Thirty Years' War, when Germany was enjoying industrial and commercial prosperity, the chief articles of export were linen and woolen goods. The occupations of spinning and weaving were carried on alongside of the raising of flax and the herding of sheep, and were widely extended among the people. For a long time Germany ruled the world market for cloths, and had a relatively large trade therefor with England, Russia, Spain, and Italy. It was only in the seventeenth century that England began to be a competitor. The invention of the spinning machine, the power loom, and the steam engine in the next century enabled England to produce textiles on a capitalistic basis so cheaply that no other country could successfully compete with her, even in its own home markets.

By carefully guarding the secret of her inventions, and by forbidding the export of machines, models, or plans, England was able to reserve a great part of their advantage to herself. It was only in 1798 that the first mechanical cotton spinning machines driven by water power were erected in Saxony. During the continental blockade of Napoleon, when the English supply of cloths was withheld from the continental markets, the industry experienced a temporary boom, but fell into desuetude again when a barrier against imports was raised.

The Zollvereine gave to the industry a wider home market, permitting the investment of more capital and the introduction of new machinery. The crisis of 1836

and 1839 weeded out the less progressive and weaker concerns, but even the survivors were far behind the English in technique, as shown by the fact that in 1860 they were just introducing the automatic spindle in cotton spinning, which had been in use in England since 1830, in 1834 there being 400,000 in use in 60 English establishments. The only thing that permitted the Germans to compete at all was the low wages paid. The higher wages of England, however, forced the manufacturers to the perfecting of labor-saving machinery, which in the long run had a greater effect in cheapening production than low wages. Low wages are responsible for the long survival of domestic production in Germany, especially in weaving.

The lower tariff after 1865 bore hard on the cotton industry in the German States; while Saxony had in 1861 707,844 spindles, in 1875 the number had decreased to 471,387. In this period all the spinning factories driven by water power, to the number of about fifty, failed. By annexing Alsace and Lorraine, the empire gave to the German manufacturers strong competitors for the home market.

Germany was very late in changing from the household to the factory system in spinning and weaving. Even so late as the middle of the century, the greater part of the spinning and weaving was done outside the factories. In 1850 there were about 1,500,000 spindles for flax spinning in the country, of which number only 65,000 were in factories (Sombart). Weaving survived as a household industry much longer than spinning, and there are to-day about 100,000 hand weavers, most of whom, however, are producers of very special sorts of fabrics, particularly silk cloths.

The technical improvements in spinning machinery came later than those in weaving machinery. At the beginning of the century, ten spinners were required to

prepare the yarn for one weaver, and so great was the demand for yarn that even soldiers in the barracks were employed at spinning; in 1895 the conditions had so altered that there were twice as many persons engaged in weaving as in spinning. The displacement of labor in spinning was so rapid about the middle of the century that it occasioned much distress among a large class, who were too ignorant and miserable to change their occupation. In 1849 there were 84,000 independent hand spinners, and in 1861 the number had fallen to 14,500 (Pohle).

Saxony is the headquarters for the cotton industry of Germany, and consumes one third of the import of raw cotton. Five sixths of all the cotton goods manufactured in the country are consumed at home; of the amount exported, England takes one fifth, the balance going to the United States, Russia, Holland, Switzerland, and Austria.

The rank of Germany as a textile-producing country, in comparison with other countries in 1895, is shown by the following table: [1] —

PRODUCTION OF TEXTILES

(000 *omitted*)

	Cottons	*Woolens*	*Silks*	*Linens*	*Total*
United Kingdom	$460,500	$308,500	$30,000	$157,000	$956,000
France	112,000	223,500	141,000	99,000	575,500
Germany	177,000	211,000	82,500	72,500	541,000
United States	279,000	222,000	91,000	213,000	805,000

In 1840 England consumed 55 to 60 per cent of the raw cotton sold in the world market; in 1900 only 25 per cent. The greatest progress in cotton manufacturing in recent times has been made in those countries which produce the raw cotton, particularly in the United States, which has won from England the first place as a cotton-consuming nation.[2]

[1] Mulhall, *Dictionary of Statistics.*
[2] Huber, *Deutschland als Industriestaat,* p. 435.

CONSUMPTION OF RAW COTTON

(*In tons*)

Average for the years	*Germany*	*England*	*United States*	*E. India*
1836–40	9,000	206,000	60,000	———
1856–60	46,000	518,000	179,000	13,000
1876–80	124,000	639,000	350,000	86,000
1887–89	205,000	681,000	476,000	158,000
1899–00	313,000	794,000	862,000	227,000

The importation of cotton is now direct to Bremen, and not by way of London, as was the case twenty years ago. The Bremen Cotton Exchange is the most important centre for the cotton trade of Germany and neighboring countries, and stands next to Liverpool as a world market, having outstripped Havre, which formerly was the great continental market.

Germany gets practically all her cotton from the United States, the import in 1903 being as follows: —

From the United States	268,087 tons
From British India	79,056
From Egypt	30,872

The fact that her sources of supply are under the control of her two great competitors has caused the German government in recent years to attempt the introduction of cotton culture in the German colonies in Africa. Not only does Germany pay a heavy tribute to these nations, but she exposes a great industry to the chances of political and economic accidents, such, for instance, as the Civil War blockade. Experts have declared the colonies, especially Togoland, to be excellent cotton-growing territory, and the cotton produced there has graded "middling" and "fully middling," according to the American standard.

The important effect which the textile schools are coming to have in promoting the industry in Germany is suggested by the following quotation from the *Times* articles in 1903: —

"Germans have a particular need for carefully trained skill for the work, because they are not naturally inventive or gifted with the innate sense of elegance possessed by the French. Consequently the manufacturers give liberal support to the textile schools, and further encourage them by giving employment to the graduates. There is no doubt that it pays them. A manufacturer was showing me one day in Elberfeld a length of dress material. 'That is going to England and is made of English material. I get the materials from England, manufacture them, and send them back. I pay the carriage both ways, and yet I can sell this in the English market.' 'How?' 'Well, you see, this is a nice design; there is brains in it.'"

Agriculture

In agriculture we have the one exception to the general rule of prosperity in German industry. Since 1875 the agricultural conditions have been very unsatisfactory, and the agrarian problem is the source of the most serious difficulties in German economics. The Agrarian party is often able to wield an influence quite out of proportion to its numbers in favor of conservative and reactionary measures which are regarded as hostile to the other industrial interests of the country. At the present time its power is so great that the recent commercial treaties concluded with Russia and Austria-Hungary are decidedly favorable to its interests, and correspondingly unfavorable to the other industrial interests of the country. Because Germany was unwilling to grant any considerable concessions to the importation of agricultural products, as she had done in the treaties which had just expired, she was naturally unable to gain concessions for the exportation of manufactured goods to the treaty countries.

The period from 1840 to 1870 was a most prosperous one for agriculture; the prices of products rose rapidly, while the cost of production, chiefly on account of the introduction of scientific methods, declined. Consequently the value of land rose proportionately to the profits of the business,

and a large portion of it was encumbered with mortgages at the high rate, so that to-day the mortgages on the land of the country amount to about three fourths of its total value. After the seventies a great change took place, and since that time a chronic depression has prevailed.

The principal cause of this depression was the considerable decline in the price of agricultural products due to the competition of American grains and meats. The enormous surplus production which followed the opening up of the trans-Mississippi country and the simultaneous lowering of both land and ocean freight rates started a stream of grain flowing to Europe which soon came to be the controlling factor of prices. The fall in the price of wheat from 1876 to 1898 amounted to 14 per cent, that of barley to 11 per cent, and that of rye to 14 per cent, notwithstanding the constantly rising tariff rate, which on wheat rose from 10 marks per ton in 1879 to 50 marks per ton in 1887. If there had been no tariff, the price would have fallen 40 to 50 per cent instead of 14.

During this time the wages of the agricultural laborers have continually advanced and great numbers have been drawn into other industries, so that in the eastern provinces where hired labor is depended upon, there is a serious scarcity of laborers during the busy seasons, which is only partially alleviated by the temporary importation of Polish and Russian labor. The difficulty is increased by the fact that agriculture is constantly becoming more intermittent, requiring many hands for short periods to whom it can furnish no employment for the remainder of the time. The introduction of the steam threshing machine has increased this difficulty, since threshing formerly employed the laborers during most of the winter.

Another cause of the agrarian crisis can be traced directly to the agriculturists themselves. The business had been pursued so long in an unbusinesslike fashion that when it became necessary to introduce business methods,

the land-owner was found sadly wanting. In the employment of capital, especially in the mortgaging of the land to secure the necessary working capital, and also in the marketing of the product, the land-owners, large as well as small, showed themselves to be very poor merchants. Of late there has been a great improvement in this respect, due to the spread of education among the agrarian classes, and to the coöperative societies which have been organized for all sorts of beneficial purposes, often by the direct assistance of the state.

Notwithstanding the great changes which have taken place in agriculture during the century, the form of land-holding has altered very little. The renting system exists to a very small extent, most of the cultivation being carried on directly by the owners of the land. With reference to the size of the holdings and consequently the manner of cultivation, Germany may be divided into three divisions: one division includes the whole eastern portion of the empire, where the prevailing type is the large estate, owned by the aristocratic "Junker" and cultivated with the aid of hired labor. These Prussian "Junkers" form the nucleus of the Agrarian party, and possess a political power, by reason of their superior social position, quite out of proportion to their numbers.

A second division would include northwest Germany, the middle states, and Bavaria. Here the prevailing type is the peasant farm of from twenty-five to two hundred and fifty acres, cultivated by the peasant himself, with the assistance of one or more hired men, perhaps.

The third division would include southwest Germany, where the land is cultivated in very small parcels, and where most of the holdings are less than fifteen acres in size. By very intensive cultivation, these small parcels of land are made to support the peasant family. More than four fifths of the whole Rhineland is cultivated in farms of less than twelve and one half acres.

Taken as a whole, Germany is distinctly a peasant land, in some parts of which there are large estates, although these do not occupy one fourth of the area, if we reckon in this class all holdings of over two hundred and fifty acres.

Two industries, beet-sugar manufacture and distilling of spirits, stand in very close relation to agriculture. A large portion of the prosperity prior to the seventies was due to these branches, and a large part of the decline has also been due to the sinking price of these products. The price of beet-sugar in London has fallen from $5.43 per cwt. in 1876 to $2.14 in 1897.

The Development of Industrial Organization

In the first chapter we have spoken of the tendency in the development of capitalism for the industrial units to become larger as the industry progresses and the organization to become better articulated. The development of the large industrial organization came a generation later in Germany than in England and Belgium for reasons which we have already discussed: lack of capital during the first half of the century, lack of a uniform market area, and the slow introduction of improved means of transportation, together with the greater conservatism of the people. Even to-day the proportion of small enterprises is still relatively large in Germany. In the United States the small handicraft industries had not got so well established before the organizing tendency began. In Austria and Italy the tendency is artificially restrained by law.

The following figures from the industrial censuses of Germany show the tendency toward industrial organization during the period 1882–95: —

Persons engaged independently in manufacturing, building, mining
1882 2,209,000 = 48.3 per 1000 of population
1895 2,061,000 = 39.6 " " *Decrease* 18%

Persons employed as laborers and apprentices
1882 3,606,000 = 79.7 per 1000
1895 5,671,000 = 107.4 " " *Increase* 35%

Persons employed as technical and financial managers, assistants, etc.
1882 118,000 = 2.61 per 1000
1895 268,000 = 5.15 " " *Increase* 97%

Small businesses, without assistants or motor power
1882 1,430,000 = 31.3 per 1000
1895 1,237,000 = 25.7 " " *Decrease* 24%

Concerns with less than five helpers, employees
1882 745,000 = 16.3 per 1000
1895 752,000 = 14.4 " " *Decrease* 11.6%

Concerns employing from five to ten people, employees
1882 49,200 = 1.08 per 1000
1895 77,900 = 1.5 " " *Increase* 39%

Concerns employing from eleven to fifty people, employees
1882 35,800 = 0.78 per 1000
1895 61,600 = 1.18 " " *Increase* 51%

Concerns employing over fifty persons, employees
1882 9,500 = 0.205 per 1000
1895 17,900 = 0.345 " " *Increase* 68%

Concerns employing over 1000 persons, employees
1882 123 businesses
1895 248 " *Increase* 78%

Distribution of the industrially active population in industries according to number of employees: —

	Klein-betrieb. Less than ten employees	*Mittel-betrieb.* From eleven to fifty employees	*Gross-betrieb.* More than fifty employees
1882	61%	13%	26%
1895	47	17	36

The development of capitalism involves, as well as increase in the number of employees in each concern, increase in the number of stock companies as against individual and partnership ownership.[1]

1886 1337 stock companies with capital of 1,904,000 marks.
1896 2307 " " " " " 3,521,000
Increase in the number of stock companies, 73%
Increase in the amount of capital of companies, 84%

Together with this growth in size of the industrial units, there has come in the last decade a tendency for the in-

[1] Troeltsch, *Die Neusten Veranderungen im Deutschen Wirtschaftsleben*, p. 73 et seq.

dividual concerns to unite their interests in a syndicate or *Kartelle*. The German *Kartelle* is a combination or pooling of interests quite like the American Trust in its original form; that is, each of the concerns keeps its individuality and its legal personality, but for certain purposes submits to the control of a committee or board representing the interests of all. The Anti-Trust Law, which made such combination illegal, forced a complete merging of the individual companies into one great corporation in America; the German government has taken no such measure, and the companies have not been compelled to take this final step.

Many of the German *Kartellen* were organized in time of industrial depression, particularly in 1900, for the purpose of safeguarding the interest of the various industries which were seriously threatened. By carefully adapting production to consumption, they have diminished the danger of crisis, and thus they perform a public service of no little value. Stock-watering and speculation have not been so conspicuous in connection with their organization as in the American trust-promoting. None of the *Kartellen* are yet strong enough to hold a complete monopoly of their particular product by controlling at once the markets for raw material and for the finished product. The benefits of organization have been so conspicuous in comparison with the evils that hostility to them on the part of the government and the people has not yet developed as with us and in England. The German sees in the *Kartelle* a power which is able to promote the export interests of the empire, and introduce greater steadiness in the domestic industrial world.

The heaviest charge against the *Kartellen* is that they sell cheaper abroad than at home. This undeniable fact has contributed much to whatever in the public opinion is unfavorable to them. The coal syndicate, for instance, delivers coal in Hamburg for export at a much cheaper

rate than it demands from the industries near the mines, in spite of the fact that Hamburg is quite a distance away, and the transportation costs a considerable sum. The coke syndicate sells coke in Austria at $2.20 per ton cheaper than at home. The wire-nail syndicate furnishes its product to foreign customers for $35 per ton, while the price for the same goods in the domestic markets is $62.50 per ton. The sugar syndicate, which was formed in 1900 and controls 98 per cent of the production, has fixed the price of beet-sugar at $3.93 per cwt. in Germany, and at $2.97 per cwt. abroad.[1]

In bad times it is the custom of the syndicates to "dump" quantities of goods on the foreign markets at low prices to relieve the home market from over-production, but in most cases it would be incorrect to say that they sell abroad at a loss, and make it up by higher prices at home.

Though the effect of the syndicates on the welfare of the German workingman is an unsettled question, it may be said that the advantages predominate over the disadvantages, for if the organizations are successful in creating more favorable conditions at home for the industry, a steadier rate of production, and better prices, these things must advantage the workingman. It is likely also that the interests of the laboring classes will be better cared for under the control of the syndicates, since the employers are more likely to be represented by men of broad views, who see that it is to the permanent interest of the industry to keep on good terms with employees. Moreover, the large concerns are much better able to introduce measures and arrangements for the health and comfort of the employees than are the smaller ones. A firm like that of the Krupps can erect model dwellings, churches, and libraries, in the interest of the workingman, much easier than the small employer.

[1] Dr. Kreutzkam in the *Handbuch der Wirtschaftskunde Deutschlands*, vol. iv, p. 677.

CHAPTER V

THE INDUSTRIAL CAPACITY OF THE GERMAN

After having remained backward and unprogressive during two thirds of the nineteenth century, while her chief competitor was developing and dominating industry, Germany at last entered upon a course of industrial progress, slowly at first, but in the last decade at so rapid a rate that she stands with England and the United States as one of the industrial powers of the earth. Having established this interesting fact, we shall now attempt to discover the causes which explain it.

We have already given a few reasons in chapter ii why Germany failed to follow England in industrial development up to 1871; naturally, the removal of some of these conditions — the destruction to wealth wrought by hostile invasions, antiquated economic institutions, and the restrictions on trade and industry which arose from the lack of political unity — will explain to some extent the recent progress.

There is no lack of reasons offered for the industrial prosperity of Germany, and the investigator meets them on every hand; but as in all cases involving a plurality of causes, the difficulty comes in apportioning to each of the contributing causes its proper weight. Some of the writers who advocate a high protective tariff, English as well as German, as for instance Dr. Rudolph Martin in his *Die Eisenindustrie in ihrem Kampf um den Absatzmarkt*, are prone to ascribe the largest part of the industrial development to the fact that Germany abandoned her free-trade policy in 1879, and the statistical tables offered

in evidence appear to prove their arguments, especially if the figures do not extend over many industries. One of the favorite arguments for the fiscal policy of Mr. Chamberlain in England is the development of certain German industries under a high tariff. A very little study, however, convinces one that the true causes lie much deeper than this, and it is the more fundamental causes that we shall discuss in the following chapters.

The economic character of a people, their aptitude for certain forms of commerce and industry, for instance, is both the cause and effect of economic conditions. Those who would explain all industrial phenomena from the national characteristics of a people overlook the fact that these characteristics are themselves to a great extent the consequences of past conditions. However, changes in the national character are slow and the result of economic conditions of long standing, and we shall not fall into serious error if, in searching for the causes of the industrial changes of the past score of years, we regard the characteristics of the German as primary causes.

Capitalistic production requires, as we well know, the existence of two classes: (1) a class composed of persons having knowledge of the technique of production and of business management, with organizing and executive ability, together with the control of capital; (2) a class composed of persons dependent upon their labor for a livelihood, who for wages are willing to place their services at the disposal of the *entrepreneur* and become parts of the industrial organization. All the population of even the most industrial nations do not fall into one or the other of these classes, notwithstanding the statement of Karl Marx; but in studying the industrial capacity of a people, we must confine our observation to those qualities which distinguish them either as *entrepreneurs* or as wage-earners.

The classification of the population as *entrepreneur* and proletariat, or wage-earners, is synchronous with the rise

of the capitalistic system. The former classification of the industrial population into masters, journeymen, and apprentices was something entirely different. The journeymen and apprentices received wages, it is true, but their relation to the master was different from the relation of the modern workman to his employer; they were members of the master's family and had the hope of becoming masters themselves at some future time, though with the development of the guild this hope became less and less, as the masters were able to acquire a closer monopoly of the trade. The modern employee has no hope or expectation of becoming an *entrepreneur*, and usually his work gives him no training whatever for such a function. Such diverse qualifications are required in employers and employees that they must be discussed from the two points of view.

One of the features common to the Germanic races and distinguishing them from the Latin especially is physical vigor and power of endurance. A severe climate compelled the primitive German to make large provision of food and clothing for the winter, which could be acquired from the unfruitful soil of his habitat only by the most strenuous and patient toil. Centuries of struggle with nature for a livelihood, and with other nations in frequent wars, have bred in the race a hardihood and endurance which are of great industrial advantage, especially in the laboring class.

Germany leads all the European nations to-day in the annual rate of increase of population, although the birth rate in that country is lower than in some others, Russia having 495 per 10,000, Austria 366, and Hungary 379. The greater increase of population of Germany, in spite of a lower birth rate, is explained by the small death rate in comparison with the countries mentioned. Germany has 363 births annually per 10,000 of population, while France, at the other end of the scale, has but 226 per 10,000.

The meaning of this difference shows up more clearly when its results are projected through a century; in 1820 France had four million more population than Germany; now Germany has twenty million more than France, notwithstanding the drain of emigration which the former country has endured and from which France has been practically free. In less than a hundred years the relation has so changed that France, which was then the larger, is now only two thirds the size of Germany as far as population is concerned.

The importance of the increase of numbers of the German nation becomes more apparent when we trace out its effects on the industrial character of the people. Nations make progress, as a rule, only when forced to do so by compelling circumstances. The pressure of an increasing population on the resources of a country is one of the most compelling causes of industrial progress. When the average number of children in a family is two, the sons may step into the places of the fathers and, without any initiative on their own part, occupy as comfortable a place in life at least as their fathers did, and continue to live in the manner to which they have been accustomed. Thus it is with the peasant population of France: the parents endeavor to leave as large a property as possible to their children, and it is not surprising that the rising generation should be content to step into the places of their fathers, continuing to live in the same conservative way. There is no necessity for innovations involving risk, worry, and disappointment, and none for leaving agriculture to enter other industries. Therefore there is lacking in France the pressure of an increasing proletariat demanding industrial employment.

It is otherwise in Germany, where larger families prevail. Each child can hope to inherit but a portion of the paternal estate, and unless he is able to acquire an income independently of that which comes from his inheritance,

he must inevitably fall into a lower economic class than that into which he has been born. In a country of such rigid social classes as Germany, this economic degradation is strenuously resisted.

So it comes about that the father, instead of striving to leave large inheritances to his children, directs his efforts to equipping them as well as he can by training and education for their future careers. In the districts where the small peasant-holdings, which are too small to divide, prevail, one son usually succeeds the father and mortgages the estate to satisfy the claims of the co-heirs. In this practice we see one of the reasons why the land of Germany is mortgaged for over three fourths of its value. The other sons seek places in the cities and manufacturing centres, and recruit the army of wage-laborers. Here we have present one of the requirements of capitalistic production, a proletariat clamoring for employment.

A difference in the size of families in the upper classes also has its effect on industrial progress. Among the children of these classes in Germany we find the struggle to retain a place in the economic class into which they were born even more intense than in the lower classes. The father, unable to bequeath a large property to each of his numerous sons, is the much more concerned to provide them with the best possible education, an education which shall be of economic advantage. Fifteen or twenty years ago, the only proper careers were thought to be in the army, civil service, the church, or in the professions; now, the expansion of industry and the broadening of social ideas, together with the opportunity for higher education in industrial and commercial affairs, — an education which ranks socially with that of the classical universities, — have conferred upon business pursuits a dignity which makes them attractive to the upper classes. The young men of this class, educated and trained in the most thorough manner, enter into industry and commerce with the hope of becom-

ing *entrepreneurs*. They are watching for every opportunity to advance themselves or to engage in independent undertakings.

In our country we know nothing of the earnestness with which these young Germans struggle to maintain themselves in their social class. It is not so easy to change from one business to another as with us, and discharge from any position under circumstances which make difficult reëmployment in the same branch is equivalent to defeat. If a young clerk loses his position in a business for which he has undergone a long training, and is unable to find immediate employment, he has no recourse to temporary employment in unskilled manual labor. The unemployed clerk would almost rather starve than accept a job of shoveling snow and thereby lose his claim to a place in his social class; employers would hesitate long before engaging a man as a clerk who had been, even temporarily, an "Arbeiter."

In a land like France, where the population is nearly stationary, and where in the average case the son inherits the whole of the estate of the father, together with his social position, there will be lacking this class of men, eagerly watching their chance to rise in their business, and accepting every opportunity for education and training in the industry which they have chosen. The condition prevailing among the French is suggested by a remark of Madame de Girardin quoted by Blondel:[1] "Chacun en France meprise son metier; on a toujours mieux à faire que son devoir." The German does not feel above his business, but is under the strongest incentives to master it and to advance himself in it.

Thus the increasing population recruits the economic classes necessary to the development of capitalistic industry. The *entrepreneur* class is constantly receiving acces-

[1] M. Georg Blondel, *L'Essor Industriel et Commercial du Peuple Allemande*, p. 112. Paris: Larose & Cie. 1898.

sions of the most enterprising and the best trained young men of the nation; the laboring class is ever increasing in numbers, and there is always at hand an army of men willing to work long hours for a scanty wage.

At the same time, this growing population is furnishing customers for home industries and foreign food-stuffs, which must be paid for by the products of home industries. The increase in the size of the home markets enables the industries to produce on a large scale, and consequently, in most industries, cheaper, thereby giving them greater competitive power in the foreign markets for the surplus of German manufactured goods.

The native hardihood and patient endurance of the German race has been preserved by the hard conditions of life under which it has lived. The peasant has had to work long and hard for what little he has been able to wring from the reluctant soil, and until recent years with the broader social ideas which came with the centralized administration, the governments did not give much thought to lightening his burdens, and many of them deliberately exploited their subjects. The German has been brought up to believe that he must work hard for the barest subsistence.

That portion of the proletariat which does not come from the peasant class springs from the artisan (*Handwerker*) class, which through the century have slowly yielded to the encroaching capitalistic system, giving up their trade only when literally starved out. Like the peasants, they have been accustomed to labor fourteen or more hours per day for the barest livelihood.

In spite of the widespread Social Democracy and the social unrest which prevails in Germany, as well as everywhere else, there is reason to believe that the German workingman is more submissive and content than the American, at least. The restrictive ordinances of the state and the guilds in agriculture and manufacturing which prevailed until far into the century have bred out of him

much initiative; his ancestors were either bound to the soil under obligations of service, or were cooped up in the towns under guild regulations which deprived them of all industrial freedom. Moreover, the two-year service in the army, absolutely subordinated to the will of the officers, goes far to suppress in the rising generation any tendency to independence in thought or action.

The German Empire is noted for having one of the most paternal of governments. The Manchester free-trade, *laissez-faire* ideas, which attained such vogue in the middle of the century, never took deep root in the German mind, and with the establishment of a strong, unified imperial government, the German easily fell back into the habit of expecting the state to do things for him. He is essentially law-abiding by nature, in which quality he contrasts most decidedly with the American. He has little of that sense of personal liberty which so strongly characterizes the Englishman and his descendants in all parts of the world. The German is a great grumbler, and is always criticising, but his dissatisfaction goes no further than the expression of opinion. That a thing is "verboten" is sufficient for him; he does not hesitate to obey until he has inquired the reason for the prohibition, even though it seriously interferes with his comfort. The American in Germany is at first mightily aggrieved over the multitude of petty ordinances which seem to restrict him on every side, but after a while it dawns upon him that they do not hinder him from doing anything that is really necessary for his comfort, but, on the other hand, that they do remove many of the small annoyances of life. Having thus once come to a different point of view, he perceives many things which he would gladly see transplanted to America.

Perhaps the reason why the German is so law-abiding is because the German laws and ordinances, since they are meant to be enforced, are more carefully drawn than

with us. Over there they have not yet made the twofold classification of legislation as we have done, into laws "to be enforced" (occasionally) and laws "not to be enforced." May not a large part of this respect for law on the part of the German be due to the respectability of the laws?

The national trait of obedience is fostered by the military system. Practically every male German must pass through the army; most of the young men must spend two years in the barracks in a part of the empire distant from their homes and absolutely under the authority of the officers.

The German army officers form a distinct, privileged social caste, living under its own special code of laws and amenable to its own courts. Until 1891 the proceedings of these courts were not made public. It is extremely difficult for the common soldier to make an appeal against the superior officer, even in cases of extreme tyranny and brutality.

For two years, therefore, the German is trained in unquestioning obedience to authority, and his personality is completely merged in the system. The traits acquired in the barracks are taken into industry when his term of service has expired.

As modern capitalism develops, it assumes more and more the aspect of a great system in which the individuality of the men is sacrificed. The operation of a large manufacturing plant approximates more and more to the routine of the army; with the perfection of machinery, the human labor comes to resemble the drill of the soldier, monotonous and mechanical. Patient toil, endurance, and obedience are the qualities fostered in the army and utilized in industry. The capitalist could scarcely ask for a better training school for his employees.

The army is also a promoter of the migration of the people from the land to the cities, from agriculture to

manufacturing and commerce. It is a rule of the military authorities to station the rural recruits in the city barracks, although of late years they have avoided quartering them in the industrial centres where Social Democracy is strong. In his period of service, the young peasant sees enough of the city and its distractions to become discontented with the slow life of the country, and he is likely to seize the first opportunity to join the mass of city wage-earners.

Whatever may be our opinion of the military system of Germany as a social and political institution, we are forced to the conclusion that the army, burdensome as it is to the country as a whole,[1] and unlovely as are some of its features, must be regarded as being distinctly favorable to industrial progress.

A German youth who has completed six years of the nine-year gymnasium course, or who has received an equivalent education in the *Mittlereschulen* and has passed a state examination corresponding somewhat roughly to our college entrance examinations, though perhaps requiring somewhat less than the examinations for admittance to our best universities, is required to serve but one year in the army, under somewhat more favorable conditions than the common two-year soldier. He may choose the regiment in which he is to serve, and may live at home if possible, as over 90 per cent of them do. To be sure, he is a volunteer (*Freiwilliger*), and does not receive the pay of the two-year soldier, twenty-four pfennigs (six cents) per day. Furthermore he must feed and clothe himself, except for a period of six weeks, when he is compelled to live in the barracks and share the lot of the others. Beside those who have the educational qualification mentioned above, the commissioners in charge

[1] Germany expended for the year ending March 31, 1904, on her military establishment, $143,949,500. Her expenditures for the navy amount to $23,317,250 annually. The expense of the army alone is one fourth of all the expenditures of the country, which amounted in the year 1904 to $499,307,500. *Statesman's Year Book*, 1904, p. 674.

have the authority to grant the *Einjähriger* certificate to those who lack the necessary education, but in its place have displayed unusual ability in artistic or industrial lines, such as the completion of a piece of work especially good, or the invention of a useful device.

The possession of the one-year-service certificate raises its holder into a higher social class, and is a distinction most highly prized. To become an *Einjähriger* is the ambition of the young German, and is a most powerful incentive to education. It has come to stand for a very definite standard of education or ability, and is demanded by most employers in applicants for positions involving more than manual skill.

Nature and training, therefore, fit the German to become a part of an organization, whether it be the state or a great industrial concern. Personal liberty, independence, and initiative are repressed, and obedience, patience, and thorough training for his position are fostered. The sense of personal liberty is subordinate to a strong sense of duty. Professor Sombart cites this as one of the great distinctions between the German and the Latin races: the former have a strongly developed *ethical* and the latter a strongly developed *æsthetic* sense. Those who saw the German exhibit at the St. Louis World's Exposition will be inclined to challenge this statement, which implies that the German is lacking in artistic sense. This splendid development of art, and especially of industrial art, is something comparatively recent, however, and the result of that thorough and patient training with which the German sets out to attain a desired end. By nature there is no doubt that the German is inferior to the Frenchman in artistic skill, but he has been able to overcome this disadvantage in a systematic way, especially by the establishment of schools of industrial art.

It is this sense of duty, this *Pflichtgefühl*, that makes the German a patriotic, law-abiding citizen and an incor-

ruptible officer. While the sins of the army are many, and many of its rules and practices, especially the officers' code of honor, would hardly be tolerated in the United States, yet the integrity of the officers is never questioned. The administration of the civil service is above suspicion, and an "embalmed beef" scandal would be impossible there.

This same honesty and faithfulness on the part of the officers and employees in private industrial administration is also more general there than with us. As the German is well qualified to fill his place as a small wheel in the great machine of the state, so is he equally well qualified to fill a similar position in a great industrial organization, whether it be as officer or as private. As the form of business enterprise develops from the partnership to the stock company, and from the stock company to the syndicate and trust, it assumes more and more the character of a public affair, and the qualities demanded of its managers and subordinate officers tend to become more and more those required of a public officer.

In the earlier formative stages of capitalistic industry, the independence and individual initiative of the Anglo-Saxon gave him a great advantage; but should the present-day tendencies in economic development prove to be permanent and the syndicate become the normal economic unit, then this capacity of the German for "teamwork," this power to efface himself in the interests of the group, will yield many advantages to German industry.

This trait of being ever ready to organize and coöperate for the attainment of a common purpose is recognized as one of the advantages which the German enjoys in every department of life. Too much, however, has undoubtedly been made of this in explaining the commercial success of the Germans, especially by English writers. We quote the following from an English consular report which seems to represent fairly the English opinion on the subject: [1] —

[1] *British Blue Book*, 1899, vol. I, p. 8.

"Another factor that is considered to have helped the development both of home industries and foreign trade is the great extension in Germany of the principle of association or coöperation amongst the commercial classes for every kind of mercantile enterprise. . . . This system is often a marked contrast to the characteristic *individual* efforts of the Englishman in commerce. . . . An instance of this principle is found in the remarkably well-organized 'export-unions' in the German Empire. . . . The tendency to form industrial combinations has in late years had a great influence on the development of the country."

Professor von Halle, who is one of the first authorities on the foreign commercial relations of Germany, says that this is an entire misconception as far as foreign trade is concerned, and that the German exporters coöperated with one another at least to no greater extent than the British; the German exporters owe their success to individual enterprise.

While it may be conceded that the German is by nature and training admirably well adapted to the capitalistic method of business, in so far as his temperament fits him for the subordinate positions in which faithfulness, honesty, and patience are required, yet how has he been able to develop these great organized industries in a few short years?

Modern industrial management has two sides, the technical and the financial. The technical side of industry rests on natural science, and the forerunners of our captains of industry were the natural scientists who, with no thought of utilitarian application of the results of their labors, created and developed the sciences of physics and chemistry. After these came men, working usually alone, who at intervals either worked out or stumbled upon a great invention. This type of inventor, often without a regular scientific education and working on his own initiative, usually looked upon as a crank by his neighbors, was more common in the United States and England than in

Germany. In Germany, on the other hand, the relation between practical industry and science has been much closer and more systematic. The German industries very frequently have laboratories with corps of regularly employed scientists in connection with the plant, or they pay retaining fees to professors of science in the universities, who are regarded as technical advisers, and who are under contract to give to their clients the benefit of any discoveries they may make. Laboratories in connection with industrial establishments are not confined to Germany alone, but in that country they are more highly developed than anywhere else, and that is the way by which the Germans are able to get so much good out of their superior technical education.

In America and England the advancement of technique is less systematic and more haphazard; the character of the inventions shows this. The Yankee excels in devising ingenious mechanical contrivances, the invention of which requires a clever intelligence rather than profound scientific knowledge. Frequently very important inventions have been made by workingmen who have little or no technical training, but who in their daily work have seen the need of improvements and have been able to work them out.

Most of the progress of technique in Germany, on the other hand, has come as the result of patient and thorough scientific investigation. The contributions of the Germans have more often been improvements in processes, for instance, in the making of steel, in the manufacture of chemical products, especially dye-stuffs and pharmaceutical preparations, and in electro-technique. Although not unknown, inventions made by workingmen as the result of experience gained in their employment are not frequent.

The work of the modern *entrepreneur* is to organize materials already at hand into an harmonious and systematic whole and administer the organization. This he does

by controlling capital. The successful and clever management of capital we call financial skill. There exists in Germany a race of people not Teutonic who possess this quality of financial skill in a high degree — the Jews.

The part which these people play in commerce and finance is in Germany as large or larger than in the United States, and much larger than in England: 111 in every 10,000 of the population of Germany are adherents to the Jewish faith, about the same proportion as in the United States, while in England there are only 20, in France 14, and in Sweden 7, in the 10,000 of population.[1] 5205 Jews in every 10,000 are engaged in trade and commerce (against 450 Christians), 2119 in manufacturing (of which 885 are in the clothing manufacturing and cleaning industry), and 106 in 10,000 are in agriculture (against 3665 Christians). While the proportion of the Jews in the total population is a little over one per cent, the proportion of Jews engaged in mercantile and financial pursuits is 11 per cent of the whole number of persons thus engaged (Troeltsch).

Sombart says that the Jew is "the commercial leaven of the German nation," and gives him credit for much of the recent industrial and commercial expansion of the country; but this opinion does not go unchallenged, and it is pointed out that among the great German captains of industry the proportion of Jews is not unduly great, — that in the great Rhine-Westphalian industries, such as the Krupps, the number of Jews is quite small.

Banking has always been the commercial branch in which the Jew excelled. "Promoting," taking the word in its largest sense, is done in Germany by and through the banks, a large part of whose business consists in marketing stocks. In this way, as in our own country, the Jew comes to play an important rôle in industry, especially since high finance and industry have become so intimately

[1] Werner Sombart, *Die Deutsche Volkswirtschaft im XIX. Jahrhundert*, p. 134.

associated. Even here, however, the Jew has no monopoly, for among the great names in the Berlin banking circle there are many Christians.

Nevertheless, from the figures given above it is clear that the Jews have an influence on trade and commerce quite out of proportion to their numbers. An evidence of the part which they have had in the development of capitalism is furnished by the anti-Semitic feeling which is current among a large class in Germany. On examination this feeling may be found to exist most strongly among those classes which have suffered most from the transition from the handicraft to the factory and capitalistic system of production. Having no understanding of the real source of their injuries, capitalism, they vent their wrath upon those who represent the system — the Jews.

There are other racial elements besides the Jewish mingled with the Teutonic in the German nation. Very important among these is the French, which came in especially at two periods: in 1706, after the Revocation of the Edict of Nantes, there was a large immigration of French Protestants, and in 1790 the Revolution drove large numbers to find a refuge in Germany, many of whom remained permanently.

The influence which the mixing of races has had on the German character has been without doubt great in sharpening the artistic perception and skill, and in adding to the slow, calculating temperament of the Teuton a vivacious and speculative element. A union of these two qualities, the calculating-cautious and the speculative-imaginative, makes the most successful *entrepreneur;* without the former he will be unstable and imprudent, and without the latter quality he is likely to be unenterprising and to hesitate in taking even legitimate risks.

We have always been taught to believe that conservatism was one of the leading traits of German character. However much this trait may have survived in social and

political life, it seems quite clear that in the industrial and business world a great change has taken place in this respect. Recent English writers have recognized this, and have attributed it largely to the technical and commercial education which the German receives. According to their view, it is the English business man who is afflicted with conservatism, and unless he speedily learns to adapt himself to the changing demands of the time, the German will supplant him in the markets of the world. The reports of the English consuls are filled with similar warnings, and make frequent mention of cases wherein the German has won to himself customers and ousted the British merchants by adapting his wares or his methods to the habits of the people with whom he dealt. As long as there was no rival in the field, the Englishman was able to sell his goods, even if he did not know the language of the country, nor make any attempt to modify his wares to meet the peculiar needs of his customers.[1]

When the German salesman appeared, however, speaking the language of the country and offering goods which, even if the quality did not correspond to the English standard, looked to be quite as good and were, moreover, much cheaper in price, he was able to capture the business and hold the customer.

[1] Many instances are related to show how the Germans have beaten the English merchants by adapting their wares to the wants and prejudices of the customers. Some of them have already become classic.

It is said that the Brazilians disliked the color black very much, even the black paper in which the English needles are wrapped. The Germans were clever enough to see this, offered needles of an inferior quality, but put up in bright red paper, and were able to capture the entire market.

The inhabitants of Trinidad have very broad, flat feet, but the English shoe manufacturers never took the trouble to send other than the English shapes. The people of Trinidad had to buy the ill-fitting shoes until the Germans came with some which suited better, and of course they won over the customers.

Williams, in his book *Made in Germany*, tells us that formerly the red handkerchiefs which the Russian women wore on their heads came from Lancashire mills. They were oblong in shape, whereas the women preferred square ones. A German perceived this, and offered square red handkerchiefs, which instantly caught the fancy of the customers and lost to England this particular market.

So much has been said about the inferiority of German goods that people are likely to get very erroneous ideas on the subject. It is true that one of the reasons why the German merchants could offer goods at cheaper prices than the English was in many cases the inferior quality due to cheaper materials or less labor in finishing them for the market. This sacrifice of quality, however, was made to suit the demand of the customer, to whom often the higher standard and finer finish of the English wares did not compensate for the greater cost. There is no doubt that it was the home market which first demanded the cheap goods of the German manufacturer, for the poverty and the low incomes in that country fifty years ago necessitated the strictest economy in purchasing. With these same goods the German went looking for foreign markets, and found that there was a great demand ready to be created when the cheaper goods should be offered. The Englishman had simply overlooked this opportunity, and had been content to supply the limited demand for high-priced wares of the highest grade. It would be much more correct to say that the German created his foreign market rather than that he captured it from his competitors.

But the fact that the German knows how to supply goods of a quality suited to the demand of the market does not imply that he cannot also manufacture high-grade wares. The British Museum has its best printing done in the Reichsdrückerei in Germany because it cannot get the same quality of work done in England. As the country becomes wealthier, the German customer demands a better class of goods, and accordingly the manufacturers are meeting this demand.

As one writer has expressed it, the English manufacturer and merchant have, until quite recently, been spoiled; they have had too easy a time of it in the past, and their long unopposed success has robbed them of the energy and enterprise with which they attained their

preëminence. They have so long been conscious of the superiority of their wares and methods that they find it difficult to realize that a change has taken place. English industry and commerce had become stereotyped, and had lost the power to adapt itself to changed conditions.

The German manufacturer and merchant has been able to make a place for himself and to continue to exist only by cleverly adapting his business to the needs of his customers. Without the handicap of tradition and obsolete methods, he has gone at it in his systematic and thorough way to develop his industries and sell his goods; he has taken pains to find out what the people want and to offer it to them; he has learned the language and business customs of his prospective customers; he has gone abroad himself or sent his young men to learn the methods of his rivals, and has not hesitated to adopt them when he has learned them.

The German merchant's knowledge of foreign languages not only enables him to speak in the language of the customer, but also enables him to read the trade papers of his English and French speaking rivals.

German young men go in large numbers to England to learn the language of that country. Because of their knowledge of French and German, they can easily find employment with English firms, and are thus enabled to learn a great deal about English methods and customers. When they return home to their own country, or go abroad to establish themselves as merchants, they are able to make good use of this knowledge in competition with the English. In response to an inquiry sent out by the London Chamber of Commerce, forty-five per cent of the firms answering admitted that they employed foreigners, and gave as a reason therefor that the English applicants did not have sufficient acquaintance with foreign languages, and that they were forced to take on foreigners, especially Germans.

One of the greatest differences between the English and the German character is the tendency of the former to underestimate anything that is not English, and the tendency of the latter to overestimate, or at least properly to appreciate, anything that is foreign. The German is his own severest critic.

Our consul-general in Berlin, Mr. Frank Mason, who has observed German conditions for many years, writes on this point in a recent report: [1] —

"As Germany has been clever and enterprising in adopting and making the best use of improved methods and machinery from abroad, so the nations which, like our own, must meet this competition in the world's markets, will find it needful to imitate her methods in much that relates to thoroughness in specialized education, in the art of adapting and selling goods to alien peoples, and to high service in everything that pertains to the development and maintenance of foreign trade."

Also from the same report: —

"An eminent English technician who recently visited the United States was impressed with the lack of scientific knowledge on the part of the foremen and high-class operatives, and the indifference on the part of their employers to the latest and highest perfections in machinery. The latter part of their criticism is confirmed by various Americans who are engaged in supplying the new labor-saving machines in Great Britain and Germany, and who find that progressive foreign firms in the metal industries are more enterprising than their American rivals in adopting up-to-date labor-saving equipments of American origin. Germany and Great Britain afford especially good markets for American machinery of the best types."

[1] *United States Consular Reports*, No. 2168, January 27, 1905.

CHAPTER VI

INDUSTRIAL EDUCATION

One of the great differences between Germany and the United States in the life of the people is expressed by the German word *Stand*. The word means trade, business, profession, or more broadly, social class. Every German has his *Stand* very definitely fixed. In that country, one is always required to give one's *Stand* along with his name and address as a part of the information by which he is to be identified. An American is likely to resent this as an impertinent and unwarranted meddling with his private affairs, when, in filling out a blank application for a book at a public library, or when registering at a hotel, he must write down his "business."

Indeed, some Americans would find it difficult to say in a word just what their *Stand* was; not so with the German. While yet a youth his *Stand* is definitely chosen, and only in rare cases does he change it throughout his whole career. A life so varied as that of President Roosevelt — university student, author, legislator, police commissioner, ranchman, soldier, president — is most extraordinary to the German mind on account of its variety. It is the opportunity which one has in America to change his occupation, to move about until he finds the thing that suits him, and to adapt his business to changing circumstances, that is likely to be in the mind of the German when he speaks of America as a "free" country. It is social and economic rather than political freedom that constitutes the greatest difference between the two countries in this respect.

One of the main reasons for this immobility in German

life is the idea that a man must be especially trained and educated for his career, no matter how humble that may be. After a man has spent several years and much money in acquiring a training in a certain line, it is not difficult to understand how tremendously hard it is for him to abandon his occupation and begin a new course of training in another. To "pick up" a trade or business or to "get there" by short cuts is unknown. There is for almost every position in life a prescribed course of education, which must be passed through by both the stupid and the clever. Hence the German thoroughness of which we hear so much. This is the price at which it is bought.

A question immediately arises: suppose the person is totally unfit in temperament and talent for the *Stand* which he or his parents have chosen for him? What happens to the square pegs who have been thrust into round holes? Unfortunately, these square pegs stick to the round holes as long as they can.

The writer once participated in a discussion about the "intellectual proletariat." The Germans maintained that this class, so numerous and pitiable in their country, were as much entitled to charitable relief suited to their needs from the government as was the ordinary pauper. The Americans of the party could see no reason for making any distinction; if the physician or lawyer had failed to succeed in their professions, why should they not find work more suited to their capacities, even manual labor, rather than become paupers? Of course, if they were unable to earn a living at any sort of labor, they would then sink naturally into the pauper class, but in that case they would be cared for as ordinary paupers. This idea was impossible to the Germans, who could not conceive of a physician doing anything for a livelihood but practicing his profession, or a lawyer anything but pleading before a court. If they failed as physician or lawyer, they failed in life. Therefore the necessity for aid to this special class of intel-

lectual paupers, whom in America we would advise to try farming before they asked alms.

The idea that every man must have his *Stand*, and that he must be particularly trained for his career in life, has created a demand for education in Germany which exists in scarcely any other land. Things which in America we expect every person to know, or to be able to acquire simply through the exercise of common sense, are there made a course of study. There is little prejudice there on the part of the practical and successful men of affairs against systematic and theoretical school training.

Other nations are acquiring great respect for the Germany variety of practical education, and the English writers and consular officers especially are urging the establishment of technical and commercial schools of the German pattern to enable England to meet the new competition in the markets of the world. There is a demand for reform in the English educational system on the plan of the German *Real* and *Oberreal* schools, which substitute modern subjects, especially French and English, for Latin and Greek, and yet maintain the same rank as the classical schools.[1]

In studying the educational methods and systems of Germany, therefore, we are dealing with one of the most fundamental causes of her recent industrial progress. There is no doubt that it is his splendid industrial training which has enabled the German to overcome many obstacles in reaching his present industrial position, and to cope with

[1] United States consul, Mr. Harris, puts the case as follows: —

"The reason that commercial education has received but little attention in England till now is because the people have a highly developed instinct for trade. Then again, the geographical position of the country, together with a combination of circumstances, has greatly assisted England to become the first commercial nation of the world. In Germany, France, Austria, and other nations of Europe the unfavorable geographical position and adverse circumstances have awakened the people to a realization of the fact that it is only a superior educational training that will put the merchants in a position to compete with those of England."

United States Consular Report, January, 1904.

the difficulties which other peoples have not had to meet; *i. e.* "widespread poverty, poor soil, and conservatism on the part of the people."

Our efficient consul-general in Berlin, Mr. Frank H. Mason, in a recent consular report, writes: [1] —

"Similarly in the iron and steel manufacture and in the long, varied schedule of textile production, it is only the possession of a vast army of skilled chemists, metallurgists, designers, dyers, weavers, and spinners, recruited year by year from graduates of the universities and technical and industrial art schools and backed by salesmen and merchants elaborately educated and trained for commercial work in foreign countries, that has enabled Germany to practically monopolize certain special forms of manufacturing, and, despite limited natural resources, to conquer and maintain a place in the front rank of industrial nations."

The beginning of Germany's educational system dates from the same period which saw the introduction of so many reforms, the period of prostration under the power of Napoleon. King Friedrich Wilhelm said after the defeat of Jena: —

"The State must regain by intellectual power what she has lost in material power, and to this end I desire that everything may be done to extend and perfect the education of the people."

It is not only that a person must be educated for the branch of industry which he intends to enter, as, for instance, mining, the manufacture of machinery, or the retailing of dry goods, but he must be particularly trained for the place he intends to occupy in the business, whether manager, foreman, or skilled workman. Naturally, the future manager must acquaint himself with all parts of the business, and to do this he may perhaps do the work of the ordinary employee for a time, but while doing so he would never think of classing himself with the men with whom he is working. This is quite a different way

[1] *United States Consular Reports*, No. 2068, September 29, 1904.

of "beginning at the bottom" than prevails in America. Here men enter a business in a subordinate position with the hope of learning it in the course of their daily duties, and they expect to be promoted according to the cleverness and ability with which they learn the business. In Germany a man could not hope to rise to the higher administrative positions unless he received special training therefor, in most cases training in a school outside the business itself. Of course there are cases in Germany where men have worked up from the bottom, but they are much more uncommon than with us.

Consequently we have in Germany a special class of schools for each grade of worker: the higher schools for those who are to become *entrepreneurs* and managers, a middle school for those who are to be technical assistants and foremen, and finally, schools simply for the skilled workmen. This classification prevails both in the industrial and in the commercial schools.

Before discussing the industrial and commercial school system, it will perhaps be well to preface a few words concerning general education. The common-school course occupies the pupil from the sixth to the fourteenth year normally. In nearly all the states the government makes at least this much education compulsory. In many places fees (*Schul-Groschen*) are still required, but the amount is small.

The common school does not prepare the pupil for entrance to a higher institution, except, of course, the continuation schools. At the end of the fourth year the parents must decide a question of vast importance to the future of the child: whether it is to continue in the common school and finish its education there, or whether it shall enter upon a course leading to higher education, at least to the attainment of the one-year-service certificate. If it continues in the common school, the only chance for more education after completing the course lies in the continua-

tion school, which simply supplements the common-school training without promoting the pupil in scholarship.

If the decision is for higher education, the child leaves the common school and enters a secondary school or gymnasium. Here again a choice must be made between the classical and the modern *Real* schools; if the pupil intends to prepare for a university, he must decide whether it shall be a classical, literary, or a technical university. The old classical gymnasiums offer a thorough training in Greek and Latin, which until recently was necessary for entrance to any of the university faculties, now only for the theological faculty.

In the *Real* gymnasiums Greek is not required, but a distinction is made between those which require Latin and those which substitute modern languages entirely for the classical. The former are called *Real-Gymnasien* and the latter *Realschulen* and *Oberrealschulen*. The *Real* and *Oberreal* schools are intended for those who expect to enter the higher industrial and commercial schools after graduation, or who wish a more practical training for active business than the classical gymnasiums offer.

The secondary schools of all sorts offer two courses: a six-year course, at the end of which the pupil may take an examination for the one-year-army-service certificate, and a nine-year course, the graduates of which are qualified to enter institutions of university grade. Roughly estimated, the pupil who has completed the nine-year course is about as far advanced in scholarship as the sophomore in our average American college at the end of his year.

We have already mentioned the importance attached to the possession of the one-year-army-service certificate. Although it does not qualify its holder to enter the universities, it places him in the class of "educated" people, and is thus of great social and practical advantage to him. The privileges which it confers doubtless induce many young Germans to attain a higher standard of education than

they otherwise would, since it often costs a severe struggle which only a very great incentive could call forth. Besides the fact that the certificate allows the young man to serve one year in the army instead of two, and under much more pleasant circumstances, it also offers the chance of becoming a lieutenant of the reserves, which means that in case of war he may go as an officer instead of as a private.

The *Fortbildungs* or continuation schools are very numerous in Germany. They are intended to provide instruction for the common people who are compelled to limit their schooling to the common schools, and who have neither the time nor the means to attend the regular schools. Since most of the pupils are employed in active business during the day, the hours of instruction must of necessity be limited to evenings, Sundays, and holidays. The general continuation schools simply supplement the instruction of the common schools, but there are also continuation schools in which practical instruction in the industrial trades and in commercial subjects is given. Most of the states have laws compelling attendance at either general or industrial continuation schools, and these laws are becoming more stringent all the time. Some of them make it obligatory on the part of the employers to see that their apprentices are receiving this instruction, and in some cases they even require the employer to allow a certain period each day during the usual business hours to be used by the apprentices for attending these schools; this time is set by the school officers.

Most of the continuation schools are supported by the local communities, but a great number of them receive all or part of their maintenance from private associations having an interest in the education of the working people, usually associations of employers.

The Prussian industrial continuation schools in 1901 involved an expenditure of over four and a half million marks, defrayed as follows: —

From tuition fees, 23%
From the State, 28%
From the local school funds and the contributions of private associations, 49%

The difficulty of providing teachers for these industrial continuation schools is a serious one, since the hours for instruction are so short that the time of the teachers is but partially employed; consequently this teaching is a supplementary occupation either of teachers who are regularly employed in the public schools during the day, and who must provide themselves with the necessary technical training, or men who are actively engaged in the industry taught, and who happen to possess the required pedagogical ability and knowledge for the place. Training courses for teachers are given in some of the higher technical institutions.

All the industrial and commercial continuation schools have the duty, in common with the general continuation schools, of supplementing the instruction received in the common schools, especially in those branches most closely related to the industry or trade. German, arithmetic, and drawing are taught in all the industrial schools. The instruction in German includes, as far as possible, reading and composition in such subjects as technology, business methods, German law (especially the constitution and statutes relating to the relations of employer and employee), and elementary economics. In arithmetic special attention is given to such calculations as are most used in industry and business, especially in bookkeeping. In drawing, after the elementary principles are learned, the nature of the instruction given differs with the different industries. The important point is to make the pupil familiar with plans and drawings and to give him the ability to work from a plan. In all industrial education, from the lowest to the highest, great stress is laid upon drawing.

In the curricula of the continuation schools of the larger

cities, especially Berlin, appear also geometry, trigonometry, algebra, physics, chemistry, French, English, history, stenography, and typewriting.

The growth of the continuation school in Prussia may be seen from the following table: [1] —

			Compulsory	
	Schools	*Pupils*	*Schools*	*Pupils*
1882	623	57,084	335	32,558
1903	1169	176,738	997	137,678

One of the reasons for this rapid increase is the general introduction of laws of compulsory attendance which the Prussian state required of the local governments as a condition in the granting of funds.

The commercial continuation schools combine more easily with the general continuation schools. The subjects especially provided for apprentices of commercial concerns are correspondence, commercial arithmetic, theory and history of trade and exchange, commercial geography, bookkeeping, stenography, typewriting, and commercial law. Particular care is of course given to French and English. In 1903 there were 253 commercial continuation schools with 25,927 pupils in Prussia.

The elementary industrial schools have for their object the training of subordinate officers and foremen of the large industries or the managers of very small enterprises. The requirements for entrance are usually the completion of the common-school course (often in addition, special requirements in mathematics and drawing), and several years' practical experience in the trade or industry, at least the completion of the apprenticeship.

The nature of the instruction in the elementary industrial schools varies widely according to the industry, but in all mathematics, the natural sciences, and drawing are most carefully taught. In some cases more emphasis is laid

[1] Lexis, *Das Unterrichtswesen im Deutsches Reichs*, Band iv, Teil 3, p. 74.

on the practical side and in others more on the theoretical side of the subject. In many of the schools the student gets practical experience by working at the trade or in the industry during a part of the year and studying in the school the remainder.

The intermediate industrial schools provide instruction for the higher officers in large industries and proprietors of medium-sized enterprises. The preliminary education demanded for entrance is at least the certificate for one-year service in the army. Some of the schools demand also a certain term of active experience in the industry, others which have workshops and laboratories waive this requirement. The progress of the student is strictly supervised, and he cannot pass to a higher without having satisfactorily completed the work of a lower grade. The course is from two to three years long, and on graduation the student is usually qualified to enter a technical university.

The technical *Hochschulen* (all institutions of university rank in Germany are termed *Hochschulen*) prepare men for the highest positions in the industrial world, and train men for careers of scientific research either as professors or as laboratory scientists in the great industries. These are the institutions which have enabled Germany to take a place in the front rank of industrial nations.

All the technical *Hochschulen*, with the exception of that of Aix-la-Chapelle, date back at least seventy years. With the establishment of the *Realschulen*, which assumed the task of preparing the students for the higher work in technology, the *Hochschulen* were enabled to confine themselves to work of a university grade, and to take rank with the old classical universities. The fees average from 70 marks to 80 marks per year, exclusive of laboratory fees.

In 1903 they were attended by 14,626 students, 2242 of whom were foreigners. Although 303 Americans attended

the classical universities in 1902, only 58 attended the technical *Hochschulen*.

The following is a list of the technical *Hochschulen* of Germany in 1903 with the number of teachers and students in attendance: —

	Teachers	*Students*
Berlin (Charlottenburg)	402	4194
Munich	115	2804
Darmstadt	108	1700
Karlsruhe	126	1685
Hanover	94	1523
Dresden	87	1082
Stuttgart	95	861
Aix-la-Chapelle	66	665
Brunswick	52	472
	1145	14,986

It is the policy of the German government to control as far as possible the educational system of the country. This aim has been but partially realized in the field of industrial and commercial education, and there are still many private institutions conducted for profit, and many of the public institutions receive contributions from corporations and associations who profit by the work they are doing. Of all the German industrial and technical schools, 536 are public and 51 are private.

While the teachers in the industrial schools consider teaching as their main occupation as a rule, yet many of them are employed in actual business. In one way this is desirable, since the instruction is thus kept in close touch with practical business, and the institution is able to secure better men by allowing them to supplement their small salaries from outside sources. In some cases the requirements as to scholarship are not insisted upon when the candidate has special technical knowledge and ability. There are no normal schools in Germany for the training of teachers for industrial schools.

The following is a list of the industrial schools of Germany above the rank of continuation schools. In the first

column is given the number of institutions in which the trade or industry in question is the principal subject taught; in the second column is given the number of institutions in which the industry forms but one department: [1]

SCHOOLS OF UNIVERSITY RANK (*Hochschulen*)		
Technical universities	9	
Mining academies (of university rank)	3	
INTERMEDIATE SCHOOLS		
Institutions with several departments		
Public	10	
Private	2	
Institutions with one department predominating		
Mechanics		
Public	12	10
Private	3	2
Textile, public	13	
ELEMENTARY SCHOOLS		
Schools for architecture and construction		
Public	53	9
Private	8	6
Schools for mechanics		
Public	13	12
Private	13	4
Mining	58	
Metallurgy	10	
Textiles	104	
Wood carving	24	5
Ceramics	6	2
Industrial art	27	
Trade schools	27	
Farriers' schools	61	
Navigation and marine mechanics	40	1
Fresh-water navigation	52	
Ship-building		4
Other industrial schools	42	9

Commercial Education

Commercial education has developed in Germany much later than industrial education, and the system is still comparatively incomplete. There is a great lack of intermediate commercial schools, and the *Hochschulen*

[1] Lexis, *Das Unterrichtswesen im Deutschen Reich*, Band iv, Teil 3, p. 30.

have lowered their own standards to accomplish the work which properly belongs to the schools below. Of the elementary commercial schools there are a great number which attempt to impart a general education along with the strictly commercial branches. Many of these are private enterprises and have a very low efficiency.

The commercial school does not meet with the same general approval in Germany as the industrial school. There is a large class of business men, as with us in America, who think that it is better for a young man, after having finished his general education, to enter at once into active business. The activity of the Chambers of Commerce and other associations of business men, however, in providing instruction and in contributing to the support of the commercial schools shows clearly that the majority are in favor of commercial education.

Only in rare cases has the state founded commercial schools; they have been established more often by the local communities, at the suggestion and with the support of the merchants' associations. Often they are private undertakings.

The commercial *Hochschulen* are established to train men in commercial science, especially such as are to manage the affairs of the large mercantile firms, or who expect to become administrative officers of chambers of commerce, or consuls, or teachers in the commercial schools.

There are at present five commercial *Hochschulen* in Germany: Leipzig, founded in 1898; Frankfurt a. M., founded in 1898; Aix-la-Chapelle, founded in 1898; Cologne, founded in 1901; Berlin, founded in 1905.

They were established to meet the need which was felt for a course of training especially adapted for those who expected to follow mercantile careers and wanted the social prestige of an education of university rank. At Leipzig, the commercial *Hochschule* is run in close connection with the university, the students attend the university lec-

tures, and the university professors lecture at the *Hochschule*. The commercial *Hochschule* at Frankfurt has close relations with the *Real* gymnasium of that city. In Aix-la-Chapelle, the commercial *Hochschule* is a department of the Technical Institute. It is only at Cologne that the commercial *Hochschule* is entirely independent.

The commercial *Hochschule* at Leipzig reported 519 students during the year 1902–03, of whom 306 were Germans and 213 foreigners; of the latter 110 alone were Russians, and none of them were Americans.

There are four classes of students admitted: (1) graduates of the nine-year course of the gymnasiums, (2) graduates of the intermediate commercial schools, (3) German teachers who have passed their state examination, and (4) those who have completed the six-year course of the gymnasium (holders of the one-year-service certificate) and also their business apprenticeship.

The provision for the admission of the last class is most wise; the business apprenticeship is held to be a substitute for the extra three years of gymnasium work, and thus the university standard is maintained. Moreover, the contact with actual business life which the apprenticeship affords, fits the student to appreciate more thoroughly, and to conceive in a much more practical manner, the courses of the *Hochschule*. This plan meets the objection of those who contend that a three-year course following consecutively upon the nine-year gymnasium course unfits the young man for practical business, and does not allow him to begin his apprenticeship until he has passed the proper age.

The courses given in the commercial *Hochschule* at Leipzig are: modern languages, commercial arithmetic, bookkeeping, general commercial technology, stenography, typewriting.

The courses given in the university and credited at the commercial *Hochschule* are: elements of political eco-

nomy, elements of political science, finance, statistics, money and banking, exchange, sociology in its practical aspects, international, administrative, and commercial law, three courses in commercial geography, applied chemistry, and five courses in pedagogy for teachers.

A typical commercial school of the intermediate grade is the *Handelslehranstalt* at Leipzig. It is maintained by the Chamber of Commerce, and offers courses for active apprentices of the local business houses as well as for students who can give their whole time to the work.

A schedule of the courses offered is as follows:—

One-year course for apprentices who have attained the one-year-army-service certificate:—

	Hours per week
English correspondence	2
French correspondence	2
Commercial arithmetic	2
Exchange and the laws of exchange	1
Bookkeeping	2
Theory of commerce	1
Stenography	2

Three-year course for apprentices who have had a common-school education and who are apprenticed to some local mercantile house:—

	First year	*Second year*	*Third year*
German	1	1	1 *hours*
English		2	2 *per*
French	2	2	2 *week*
Commercial arithmetic	4	3	2
Theory of commerce		1	1
Bookkeeping and office work		1	2
Business correspondence			1
Commercial geography	1	1	
Penmanship	2		
Stenography	2	1	1

Three-year course for students who are not otherwise employed, and who have had a common-school education and in addition special instruction in German, French, geography, history, and arithmetic:—

	First year	*Second year*	*Third year*
German	4	3	3 *hours*
English language and correspondence	5	4	5 *per*
French language and correspondence	5	4	5 *week*
Mathematics	3	3	4
Commercial arithmetic	5	3	2
Physics	2	2	
Commercial technology			2
Chemistry		2	2
Study of materials			1
General and commercial geography	2	2	2
General and commercial history	2	2	2
Commerce and exchange		2	1
Bookkeeping and office-work		3	3
Economics			2
Penmanship	2	2	
Stenography	2	1	1
Gymnastics	2	2	2
Optional: Spanish, Italian, and Russian			

One-year course for students who have attained the one-year-army-service certificate, and who intend entering the offices of wholesale houses, large manufacturers, or bankers: —

Prescribed	*Hours per week*
English language and correspondence	5
French language and correspondence	5
Commercial arithmetic	4
Commercial law and the law of exchange	2
Bookkeeping	4
German correspondence	2
Economics	3
History of commerce and geography of commerce	3
Study of materials	3
Penmanship	1
Elective	
German for foreigners	2
Spanish	2
Italian	2
Russian	3
Stenography	2

CHAPTER VII

THE GERMAN WORKINGMAN

The ultimate aim in studying the economic conditions of a country is not to establish the amount of imports and exports, or the quantities of iron or textiles produced; these are only means to an end. The real object of all such inquiries is directly or indirectly to ascertain the degree of prosperity enjoyed by the people, and the causes therefor, so that other countries may learn to make use of the same means if they have brought prosperity, or to avoid them if they have proved obstructive.

We have established the fact that Germany has made a great industrial advance; that the amount of goods produced and consumed has enormously increased; that her foreign trade has grown at a greater rate than that of other European countries. But that knowledge requires to be supplemented. We want to know the effect these changes have had on the welfare of the people. Industrial progress is not always synonymous with economic prosperity. The darkest chapter in the economic history of England covers the period during the first half of the nineteenth century, which we know as the period of the Industrial Revolution, when the wealth of that nation was increasing by leaps and bounds, and the great mass of the people were living in the most appalling degradation on the scantiest incomes.

The rate of wages and the amount of incomes tell us much about the economic condition of a people, but with them we must also have some information as to the prices of the common articles of life and the cost of living. Yet even with these facts before us, we cannot draw absolute

conclusions. The same money income, possessing the same purchasing power, will secure for one person a comfortable existence, while to his neighbor it will mean poverty. Between the people of different nations this ability to utilize goods and income varies greatly, especially between a wasteful people like the average American and a frugal one like the French.

Furthermore, many of the conditions by which we are surrounded are quite independent of goods which we may purchase with an income. Municipal ordinances, clean and well-lighted streets, public parks, schools, museums, etc., are just as real advantages to those who possess them as the goods which they purchase with money.

The rate of wages has also another interest for the student of economic conditions, inasmuch as wages are one of the most important constituents of the cost of production. For this purpose, however, it is necessary to take the point of view of the employer and regard wages as outlay for labor force, or cost of labor. The employer is not so much concerned as to the amount he pays to the individual workman as he is about the total sum he must pay for a given quantity of work performed. So the question turns about the amount and quality of the performance of the workman. Therefore high wages may not indicate a high cost of labor, nor low wages a low cost of labor. If we find a difference in the customary rate of wages paid in two countries, we are not justified in concluding that one of the countries produces goods at a less cost than the other, and is consequently better able to compete in the markets of the world.

Professor W. J. Ashley has just published a little book [1] on German wages, as a contribution to the tariff controversy now being agitated in England under the leadership

[1] *The Progress of the German Working Classes during the Last Quarter of a Century.* London: Longmans, Green & Co. The book appeared in December, 1904.

of Mr. Joseph Chamberlain. The free-trade party has referred to Germany as a protectionist country in which the condition of the workingman is bad. Professor Ashley frankly admits that his researches are made for the purpose of refuting these statements; but since he has relied upon fact and statistics to maintain his thesis, we may accept without hesitation the results reached by this trustworthy authority.

Most of the following tables have been collected or compiled by Professor Ashley from various sources. We reproduce them here, with some others, to show the general upward tendency of wages during the recent past.

The first table is compiled from the Imperial Insurance Statistics, and covers the wages of all men, women, and children engaged in building, mining, metallurgy, textile, and chemical industries. These returns have been collected for the purpose of reckoning the compensation to be given for accidents. According to law, the excess of wages above 1200 marks per annum is to be reckoned at one third the actual amount. That is, if a person is in receipt of 1500 marks, 300 marks is to be returned in these statistics as 100 marks, and the total annual wage at 1300 marks instead of the real amount. The effect of this, of course, is to underestimate the increase of wages whenever they are above the 1200 mark limit. It is to be assumed that if the wages under 1200 marks have increased, those above that figure have likewise increased; so that the fault of the table is that it shows a much smaller rise of wages than actually occurred.

GERMAN WAGES, 1886–1900, AS RETURNED BY THE INSURANCE AUTHORITIES

(*Percentage of wages in* 1900)

1886	81.4	1894	85.9
1887	78.7	1895	84.9
1888	79.3	1896	88.6
1889	80.8	1897	90.9

1890	84.4	1898	94.4
1891	84.8	1899	96.8
1892	84.3	1900	100.0
1893	84.8		

The important industry of ship-building employed 50,451 men in 1889–1900, of whom 15,341 were ship-builders, 9906 machinists, 6696 helpers, and 2816 boiler-makers. These classes comprise 64 per cent of all the employees of the industry, and the statistics of their wages will afford a clear view of the general condition of wages in this industry.

WAGES PER HOUR AT A HAMBURG SHIPYARD[1]

	1880	1890	1899
Ship-builders	28–35 pf.	32–45 pf.	34–48 pf.
Machinists	30–33	35–42	39–43
Helpers	26–28	31–34	33–34

This general improvement in earnings took place in spite of the fact that a reduction of the hours of labor, an introduction of the eight-hour day, took place in the middle of the eighties.

The movement of wages in coal mining is exhibited by the following figures, compiled by the labor department from official Prussian sources, and published in the *Abstract of Foreign Labor Statistics* (1901), p. 30: —

AVERAGE ANNUAL EARNINGS OF ADULT COAL MINERS IN PRUSSIA

	Hewers and Trammers	*Surface Workmen*
1888	£41 3 s. 2 d.	£34 2 s. 8 d.
1889	45 9 6	36 10 2
1890	52 6 9	40 7 0
1891	53 17 1	40 18 11
1892	50 1 9	39 11 8
1893	48 0 2	38 14 10
1894	48 13 4	38 17 2
1895	49 6 2	39 5 9
1896	52 8 11	40 11 11
1897	56 14 5	42 8 8
1898	63 9 1	46 2 8

[1] Schwarz und von Halle, *Die Schiffbauindustrie* (1902), pp. 105–111, 124.

The rise of wages in the textile industry has not been so marked, but improvements in conditions not appearing in statistics have taken place; for instance, the disappearance of hand-loom weavers and domestic workshops. The proportion of women and children employed has also increased, and their lower wages naturally tend to bring down the average. The increase in the percentage of women employees has grown from 38 in 1882 to 45 in 1895 of the whole number of persons employed. The industry employed in 1895 about three quarters of a million people. The following statistics deal with about 117,000 out of the whole number of employees: —

AVERAGE ANNUAL EARNINGS OF THE OPERATIVES EMPLOYED BY THE TEXTILE ASSOCIATIONS IN SILESIA AND ALSACE [1]

	In Silesia	*In Alsace*
1885	401 marks	
1886	401	600 marks
1887	410	592
1888	415	601
1889	425	606
1890	435	618
1891	438	617
1892	439	608
1893	444	624
1894	446	630
1895	453	645
1896	461	649
1897	471	655
1898	483	663
1899	494	670
1900	506	

That the general upward tendency of wages has affected all classes of labor, from the skilled to the unskilled, is shown by the table giving the wages of day laborers in the large cities. These figures are compiled by local authorities under provision of the sick-insurance laws, and represent

[1] Sybel, *Störung im Deutschen Wirtschaftsleben*, i, pp. 145–148. Published in the *Vereine für Social-Politik*, vol. cv, 1903.

"the rates of daily pay customary in the locality." The increase, on the average, has been about 25 per cent from 1884 to 1904.

CUSTOMARY LOCAL WAGES OF DAY LABORERS IN THE CITIES, 1884–1904

Towns	*Population*	1884	1900	1904
Aachen	135,000	2.0 m.	2.4 m.	2.4 m.
Altona	161,000	2.5	3.0	3.0
Barmen	141,000	2.4	2.4	2.7
Berlin	1,888,000	2.4	2.7	2.9
Bremen	163,000		3.0	3.5
Breslau	422,000	1.6	2.0	2.4
Brunswick	128,000		2.2	2.5
Charlottenburg	189,000	2.0	2.5	2.9
Chemnitz	206,000	2.0	2.2	2.5
Cologne	372,000	2.5	2.5	3.0
Crefeld	106,000	2.4		2.6
Danzig	140,000	1.8	2.0	2.5
Dortmund	142,000	2.0	2.5	2.75
Dresden	396,000		2.5	2.8
Düsseldorf	213,000	2.4	2.4	3.0
Elberfeld	156,000		2.4	2.7
Essen	118,000	2.4	2.4	2.8
Frankfurt a. M.	288,000		2.5	3.1
Halle	156,000	2.1	2.2	2.45
Hamburg	705,000		3.0	3.0
Hanover	235,000	1.8	2.4	2.7
Kassel	106,000	2.1	2.16	2.5
Kiel	107,000	2.7	2.7	3.2
Königsberg	189,000	1.7	2.0	2.3
Leipzig	456,000		2.0	3.0
Magdeburg	229,000	2.0	2.0	2.5
Mannheim	141,000	2.3	2.7	2.7
Munich	499,000	2.3	2.5	3.0
Nuremberg	261,000		2.2	2.9
Posen	117,000	1.6	1.6	2.0
Stettin	210,000	2.0	2.25	2.5
Strassburg	151,000	2.2	2.5	2.5
Stuttgart	176,000	2.0	2.7	3.0

The next table is compiled from the pay-roll of an engineering establishment, and shows not only a rise in wages, but also a greater steadiness of employment.

THE ANNUAL EARNINGS OF WORK PEOPLE EMPLOYED MORE THAN TWO HUNDRED DAYS PER YEAR IN A MAGDEBURG ENGINEERING ESTABLISHMENT [1]

Amount of Actual Earnings (in marks)	*Number of employees receiving the various amounts*		
	1887	1892	1897
100– 200	1	1	0
200– 300	8	17	16
300– 400	8	12	6
400– 500	2	19	3
500– 600	2	15	5
600– 700	4	14	4
700– 800	11	12	6
800– 900	21	36	22
900–1000	51	61	33
1000–1100	53	107	65
1100–1200	67	83	91
1200–1300	68	119	113
1300–1400	38	87	161
1400–1500	22	55	146
1500–1600	6	37	127
1600–1700	7	19	74
1700–1800	9	12	74
1800–1900	3	3	40
1900–2000			23
2000–2600			31
Total number employed 200 days or more	381	709	1041
Total number employed	545	884	1296
Percentage	69.9	80.2	80.3

The largest private industrial concern in Germany is the well-known Krupp Iron Works at Essen, which employs about 24,000 people. The average daily wages of all the employees from 1871 to 1900 is shown by the following table: —

AVERAGE WAGES PER DAY IN THE KRUPP WORKS, 1871–1900 [2]

1871	3.03 marks	100%
1875	3.89	128
1880	3.19	105
1885	3.64	120
1890	3.95	130

[1] Beck, *Lohn- und Arbeits Verhältnisse in der deutschen Maschinenindustrie* (1902), p. 40.

[2] Statistics of the Essen Consum-Anstalt, prepared for the Düsseldorf Exposition, p. 24.

1891	4.05 marks	133%
1892	4.06	134
1893	4.09	135
1894	4.06	134
1895	4.10	139
1896	4.24	139
1897	4.48	147
1898	4.57	150
1899	4.72	155
1900	4.74	157

In the chemical industry the average wages have increased considerably during the last few years. The annual average wage per workman in this industry for the last six years is as follows: [1] —

1894	885.04 marks
1895	894.16
1896	906.04
1897	922.03
1898	948.31
1899	965.71

According to the income-tax returns, the average income of the German citizen has increased as follows: [2]

1840	241 marks
1870	372
1895	506
1900	650

The foregoing statistics establish beyond question the fact that the money wages of the German workman have risen considerably in all industries. At the same time there has been a marked reduction in the number of hours of work per day. That this advance in money wages has not been entirely counterbalanced by a rise in the cost of living, and that the improvement has been a real one for the workingman, is demonstrated by the following table of prices of food in the Essen market, which is given in connection with the wage-table for the employees of the Krupp works: —

[1] *Handbuch der Wirtschaftskunde Deutschlands*, vol. iii, p. 495.
[2] Sombart, *Die Deutsche Volkswirtschaft im XIX. Jahrhundert*, p. 459.

PRICE OF FOOD AT ESSEN, 1871–1900 [1]

	Bacon per Kilo		*Beef, 2d, per Kilo*		*Veal, 2d, per Kilo*		*Potatoes 100 Kilos*	*Rye Bread*
	Price	%	*Price*	%	*Price*	%	*Price*	*Price*
1871	1.40 m.	100					8.00 m.	0.16 m.
1875	1.49	106	1.10 m.	100	1.15 m.	100	5.60	.15
1880	1.53	109	1.16	105	1.20	104	7.94	.18
1885	1.44	102	1.20	109	1.20	104	6.11	.14
1890	1.71	121	1.26	115	1.22	106	5.98	.14
1891	1.50	106	1.30	118	1.25	109	8.47	.17
1892	1.55	110	1.30	118	1.20	104	7.47	.18
1893	1.51	107	1.21	110	1.13	98	4.86	.13
1894	1.50	106	1.24	113	1.17	102	5.27	.12
1895	1.41	100	1.30	118	1.27	110	5.93	.12
1896	1.36	96	1.23	112	1.21	105	5.30	.13
1897	1.51	107	1.20	109	1.25	108	6.04	.14
1898	1.63	116	1.20	109	1.33	115	6.27	.14
1899	1.47	104	1.20	109	1.40	121	5.87	.14
1900	1.44	102	1.22	111	1.40	121	5.56	.13

The statistics which we have reproduced in this chapter prove conclusively that the rate of wages has risen during the recent past, and has risen more than the price of the necessities of life, showing that the German workingman has shared in the prosperity of the country. Another indication of the improvement of the labor conditions, especially of the lowest class of labor, is the great falling off of emigration during the last decade. There is at present a greater immigration into Germany than emigration from it.

We have refrained from going into the question of the comparative wages of England, the United States, and Germany. Professor von Halle of Berlin, who has intimate personal knowledge of the labor conditions of the United States and England, as well as of those of his own country, says that wage statistics for the purpose of comparing the condition of the workingmen of one country with another are *Schwindel*. Even if it were possible to calculate a sort of "real wage" by mingling together wage statistics with those of the cost of living, we should still lack a suitable basis for conclusions as to the compara-

[1] *Exhibit of the Consum-Anstalt*, p. 24.

tive prosperity of the workingmen of the several countries. There are too many elements besides wages and prices to be considered in comparing the condition of one people with that of another, and it would seem to be much more reasonable to draw conclusions from actual observation of conditions as they exist.

Nor does a comparison of wages prove of much value in determining the cost of labor as one of the factors in the cost of production. The capacity of the workmen varies so much that the laborer most highly paid is often the cheapest to his employer. In this connection it must also be remembered that high wages may sometimes be unfavorable even to the workingman, when they are procured at the expense of health. The man employed on piece-work, straining every nerve and muscle all the day long, and snatching a bite of luncheon at noon without quitting his bench, may establish a record for efficiency which is the boast of the shop, and may receive a wage that is above the usual pay of his class; but what does it profit him, if by so doing he has squandered his health and energy recklessly, and breaks down long before he has reached old age? Moreover, it is perhaps more than likely that he has been spending every cent of his high income as fast as it came. Leaving his work every night in a state of exhaustion, his weakened nerves are not able to withstand the temptation to drink, and his ample income permits the indulgence.

The slower-moving German, taking his hour and a half or two hours for *Mittagsessen*, with two *Pauses* besides, may not get half as much pay, but at the same time he may get twice as much satisfaction out of life. Professor Schulze-Gaevernitz[1] says that the hours of labor in the textile industries were two more than in England, but that the machinery ran 10 per cent slower and only 80 per cent of the working time, while in England it ran from 92 to 95 per cent of the time.

[1] *Der Grossbetrieb*, 1893.

There is a surprise in store for every American who visits Germany expecting to see want and misery on every hand. He will search in vain in the large cities for districts which he can compare to the East Side of New York or the Hull House district of Chicago, at least so far as external appearances go. There is in Berlin nothing which is at all like an American slum. At first he will be inclined to attribute this condition to the superior municipal government which makes Berlin the cleanest and best-regulated city in the world. He will still believe that the essential conditions of the slum must exist somewhere, although concealed from the public view behind the white walls of the monotonous rows of flat buildings which, in the poorest quarters of the city, look very little different from those of the fashionable Charlottenburg streets.

He will look for signs of degradation and misery in the people on the streets and the children running about. Of course he will see evidences of poverty, but it is a respectable, dreary dead-level of poverty, which is something quite different from the picturesque loathsomeness to be seen in our slums. He will fail to find that ragged, filthy, drunken depravity which marks so many English cities, as, for example, Liverpool and Manchester. At first he may be tempted to attribute the difference to the German government, and imagine that the extreme poverty is prevented by large distributions of poor-relief. Authorities will tell him, however, that there is much less expended in purely charitable enterprises in Germany than in England, and that the German pauper class is small compared with that in England. Professor Schmoller[1] says that the burden of public poor-relief is twice as great in Great Britain as in Germany.

On the other hand, there are probably fewer of the working class who are really well-to-do in Germany than

[1] Schmoller, *Grundriss der allgemeinen Volkswirtschaftslehre*, vol. ii, p. 325.

in England or, of course, than in the United States. Competent observers have frequently remarked this lack of extremes in Germany. In the report of the delegation sent by the British Iron Trade Association to investigate German industrial conditions, we find it stated on this point: —

"So far as Germany is concerned, the greatest difference, compared with our own country, consists in the amounts received by many of the head 'mill-contractors,' whose counterparts practically do not exist in Germany, the engineer there taking the full control, oversight, and responsibility of his department. Apart from these men, there is not the difference in wages paid as between Germany and this country that is commonly supposed to exist, taking into consideration the whole of the manufacturing departments in the iron and steel works. In other words, the general distribution of wages is more evenly balanced, and we do not find the extremes that obtain amongst English workmen" (1896).

Herr von Berlepsch, former Prussian minister of commerce, sums up his opinions on the condition of the working classes in the following quotation from a recent speech: —

"First let me say that I am well aware that the condition of industrial wage-earners has, on the whole, become better in the course of recent decades, and that with some industries and classes of workmen the improvement has been quite considerable — although altogether apart from the blessings, which can hardly be overestimated, of the insurance against sickness, accident, old age, and infirmity. Absolute, permanent poverty has considerably diminished; indeed, it has practically retreated to certain branches of 'home' work. . . . The fact needs no long argument; even the leaders of the Social Democracy now recognize that the theory of the progressive impoverishment of the masses can no longer be maintained. Slowly and by little steps rises the well-being of the general body of the people; and no small number of those classes of the population which thirty years ago obtained a bare subsistence have now made their way into a middle class and enjoy a fairly adequate income."

How shall we account for this absence of extreme poverty among the working class in Germany? A difference certainly exists between the German and the Anglo-Saxon in respect to education and training. The German thinks that every person must be educated for his calling in life, no matter how humble that may be; and the opportunity is provided, indeed in most of the cities it is compulsory, for every man to receive instruction in his trade. The continuation schools (*Fortbildungsschulen*) provide instruction evenings and Sundays for those who are employed during the day. The educational system of Germany goes far to eliminate that class of helpless incapables which is the despair of the charitable societies of England and America.

Another cause of the favorable condition of Germany as regards poverty is the greater sobriety of the proletariat, notwithstanding the fact that statistics show the consumption of alcoholic drinks to be much larger in Germany than in England.

CONSUMPTION OF ALCOHOLIC DRINKS PER CAPITA [1]

(*Gallons consumed annually*)

	Wines	*Beer*	*Spirits*
England	0.41	31.9	1.03
Germany	0.77	27.1	1.85

This is not due, however, to the larger consumption of the working classes, but to that of the higher classes. While in recent years there has not been wanting temperance agitation in Germany, it has made much less headway than in England and America, and teetotalers are rare. In Germany there is much less drinking of spirits among the working classes, and the large consumption indicated by the statistics arises no doubt from the almost universal habit among the higher classes of drinking liqueurs. Moreover, the German beer is a much milder beverage than the English ale. Drinks of all kinds are much cheaper

[1] *Board of Trade Statistics*, 1898.

in Germany than in England, and the German workingman spends far less of his income in this direction than the Englishman or the American. Drunkenness among women, which is so common in England, is as rare in Germany as in America.

If the German workingman spends comparatively little money on drink, he spends still less on gambling. There are no horse-races and pool-rooms for public betting, and few, if any, gambling-rooms of any kind. It is true that the state maintains a lottery, from which it derives a considerable revenue, but it is so arranged, especially in Prussia, as to be as little attractive as possible to the poorer classes. Moreover, this form of gambling is much less harmful than other forms. There is little excitement about it, and men are not likely to be tempted to risk more than they can afford — the worst feature of ordinary gambling. The buying of a lottery ticket is more like an investment, and no doubt often conduces to frugality.

We have observed in Germany a great lack of opportunity for the workman to rise and to better his condition in life. When the German youth has once chosen his *Stand*, he can almost forecast his whole career; he knows almost what his income will be for every year of his life, unless something quite unusual occurs. This settled condition of things is felt by every American who becomes acquainted with Germany as hopelessly depressing; life without the hope of changes of fortune, even when accompanied by the inevitable risks of defeat, seems to him hardly worth the living, especially if he possesses the characteristically American restless, energetic temperament. As he himself would express it, the American wants "a run for his money."

There is, however, a bright side to this picture. The German accepts these settled conditions and knows no other. His philosophy of life teaches him that contentment

is the secret of happiness, and all his efforts are directed toward making the best of what he has, since there is little hope of gaining more. Unlike the American, he has not always before him examples of fortunes won by men of his own class who, discontented with their lot, have taken the risk of new enterprises. The German of the lower class lacks enterprise because he has no opportunity to use it; he is wise enough to see that for him frugality and contentment are better.

The introduction of insurance laws protecting the workingman against sickness and accidents, and promising him a pension in his old age, has had the tendency to make the laborer more contented. It does not matter very much that the relief and pension are very small, and that the workingman has paid for most of it himself out of his wages; the real point is that they decrease the chances of misfortune in life. How shall we estimate the psychological effect of this protection in increasing the happiness of the population? Who can say how much it is worth to be rid of anxiety about sustenance in the future? It would be manifestly absurd to try to calculate this effect from the amount of money received by the beneficiaries, or to balance it against the higher wages of the English or American workman.

There is one conspicuous instance in which the German government affords less protection to the workingman than the English or the American. In the latter country the law gives the workman the first lien on the work which he has done. Powerful capitalistic interests have prevented the passage of a similar law by German legislatures. In many cases in the large cities, speculative building companies have undertaken construction on borrowed capital, and have later declared bankruptcy. The lenders of the capital in such cases have taken the building and lost nothing, while employees of the bankrupt company have lost their wages.

We can now begin to appreciate the factors other than wages which enter into consideration in comparing the condition of workingmen of different countries. Lower wages, even lower "real" wages, can be accompanied by just as high or higher standard of happiness. It is often wonderful what a small income can be made to do if its owner concentrates his whole attention to utilizing it to the greatest possible advantage. We may often see this among certain people in our own country who receive fixed incomes which they are powerless to increase. Their energies are not diverted to making more money, but are directed toward making that money which they have bring the greatest results. Here, I think, is the explanation of the German household miracle, the decent maintenance of a family on seventy-five cents to a dollar per day. We don't know *how* it is done, we know only that it *is* done.

The government takes an active interest in helping the poor man make the most of his small income. While the taxes are often cruelly heavy, yet they are so scientifically distributed that the burden is as light as possible. The small property-holder or the recipient of a taxable income is spared the indignation of seeing his wealthy neighbor "dodging" his share of the tax. He also has visible evidence always before his eyes of the use to which his contribution is being put, in the clean streets and in the various municipal enterprises. He is not troubled by the thought that most of his tax payments are going into the pockets of the "grafters." The government, moreover, does not give letters of marque to great public-service corporations and turn them loose to prey upon the public. When the municipality does not perform the service itself, it takes care that those to whom it has confided this public duty do not abuse their right, and it reserves a considerable authority to regulate the actions of the companies. In Berlin the street railways and some of the gas plants are privately owned, but the universal fare is two and a half

cents, and the price of gas less than one third that charged in Chicago.

Düsseldorf, one of the medium-sized manufacturing cities of the Westphalian district, is a good example of what the public authorities do for the welfare of the citizens. The following enterprises are under municipal control: water supply, gas, electric light, electric street railways, parks, markets, quays, slaughter-houses, savings-banks, mortgage business, pawn-shop, libraries, baths, theatre, concert hall, orchestra, museums, picture gallery, police, fire department, workhouse, outdoor relief, night refuge, workmen's dwellings, sick-insurance, numerous endowed charities, hospitals, cemeteries, and art schools.

Besides the greater steadiness in the rate of wages and the absence of such extremes as we find in England and America, there is also less changing of employment and less non-employment in Germany. Men do not change their employment, nor move from one establishment to another so readily. In most cases the law requires at least a two weeks' notice before the employee can be discharged or leave the business.

We may safely say, I think, that the relation between the employer and the employee is less a transaction for the buying and selling of labor force than in *laissez-faire* England and America. The close interest which Herr Krupp took in the welfare of his employees is duplicated on a smaller scale all over the country. Though the old guild system has practically passed away, yet one of its leading ideas, that the workman has a right to expect his trade to support him, still survives to a large degree. Capitalism has not been able to destroy entirely these old customs; the contributions of the employers to the insurance funds of the workmen testify to the more permanent relation which exists between the employer and the employee than we are accustomed to find in our own country.

The German civil service is the best example of permanency of employment. The young men who enter it expect to remain there all their lives, to receive a pension in their old age, and, if they die or are disabled, to leave their families provided for by the state. They cannot be dismissed without good cause, and promotion comes as a reward for length of service rather than for good work or efficiency. Their hours are short, and they are free after three o'clock in the afternoon, in most of the offices.

The factory legislation of Prussia throws some light on the conditions surrounding the working class. The laws may seem to be less thorough and protective to the workman than in England, but it must be remembered that the Prussian laws are enforced, and consequently greater care is taken in their making. Therefore they are not so strict as to be impracticable, but at the same time strict enough to protect the workmen, while hampering business and enterprise as little as possible. Even in those explicit rules for special trades there is a marked avoidance of those minute hard-and-fast directions which are apt to be annoying without being effective.

The law provides that the rules of each factory must be posted up, and that they must state definitely the hours of work, meal-times, time and manner of paying wages, the length of time of notice to quit, punishments, and fines. These rules must be approved by the factory inspector within three days of their passage, and it is his duty to see that they comply strictly with the law. Before the rules go into effect, the workmen are given a chance to criticise or make suggestions.

Children under thirteen years of age may not be employed. From thirteen to fourteen years they may not be employed longer than six hours per day. From fourteen to sixteen years their working day must not exceed ten hours, with at least one hour at noon and two half-

hour recesses, one in the forenoon and one in the afternoon, unless the working day is less than eight hours long. In 1901 there were 9454 children employed who were from thirteen to fourteen years of age, 25 per cent of whom were in the textile industry. The officers of education have the right to compel employers to allow their employees under eighteen years of age the opportunity of attending the continuation schools, if these are in session during the working day.

Women are not allowed by law to do night work, nor must they be employed more than eleven hours per day, and not more than ten hours on Saturdays and days before holidays. If they are also housekeepers, they may demand an extra half hour at noon. Mothers may not be employed for four weeks after confinement, nor for two weeks longer, unless they have a physician's certificate.

The legal holidays are Sunday, New Year's Day, Easter Monday, Ascension Day, Whitmonday, Busstag (a religious holiday), and two days at Christmas. In Catholic states there are several more holidays.

The men may be punished with fines, but they are limited in amount, and the money derived therefrom must be turned over to the sick funds for the benefit of the employees.

As a rule, the factories are kept in a much better condition, and have more arrangements for the comfort of the men, than in the United States. This is the general opinion of writers who compare the conditions prevailing in the two countries, and it seems to be confirmed by direct observation. The factories usually have good light and air, are clean and orderly. The sanitary arrangements and the facilities for washing and changing clothes are splendid. Most of the factories are provided with lockers for the men, so that they need not leave the place in their working-clothes. Very often shower baths are available. The German habit of taking a meal in the forenoon and another

in the afternoon during the working-time has led to the establishment of dining-rooms in many factories, where the men may procure a cup of coffee or a glass of beer.

The actual working-time in the average German factory is ten hours, but the day appears longer on account of the three breaks for meals, taking up from one and a half to two and a half hours. A competent authority makes the statement that the hours average one per day more than in England, and one less than in the United States. The English Saturday half holiday is an advantage which the workmen of that country enjoy over the German.

The German trades-unions lack the strength and solidarity of the English and American. Perhaps one of the reasons for this may be found in the workingman's insurance laws, of which we will speak later. The government has here usurped one of the functions elsewhere performed by the trades-unions, and which is one of the sources of their strength.

The right of combination is guaranteed by the German law to all employers and employees, except servants, agricultural laborers, and seamen, for the purpose of obtaining a more favorable wage and work conditions. Strikes and lockouts are recognized as legitimate means in industrial disputes; but if the means adopted are actionable under the ordinary law, then the action lies against the combination and the persons acting for it. Physical compulsion, denunciation, intimidation, or abuse for the purpose of inducing others to join, or to prevent them from leaving, — such combinations are punishable with three months' imprisonment, or more if the offense falls within the competence of the criminal law.

Politics plays a very large rôle in German trades-unionism; in fact, politics has divided the unions into three distinct classes. The largest is the Free Social Democratic Union, which in 1902 numbered 678,181

members. It forms the most important element in the Social Democratic party. The Christian Union, on the other hand, is particularly opposed to the atheistic features of the Social Democracy. It does not, however, represent any particular religious propaganda. In 1902 it numbered 84,667 members.

In both these central unions the membership is fluctuating, their property small, and their funds system very undeveloped. The leaders of these unions were opposed to state insurance, and preferred that the money of the workingman should be used in political agitation. For many years the unions have been weakened by this attempt on the part of the political leaders to make them mere auxiliaries to the Social Democratic party.

At present a change is being effected, and the unions are becoming less political and more like the English and American; consequently they have gained rapidly in strength. There is also a tendency for the Social Democratic and the Christian unions to get together; and there is no doubt but that, when the Social Democratic unions lose some of their most pronounced socialistic features, especially their atheistic doctrines, the two will amalgamate to the great advantage of the cause of organized labor.

The third class, the Hirsch-Dunker unions, are modeled on the English plan and hold aloof from politics. They repudiate the socialistic idea of class war, and seek to adjust peacefully the relations between capital and labor. Their membership is 100,000, and is composed of the highest class of workingmen. They place great reliance on self-help for the workingman. One of their activities is the insurance of their members against non-employment, the one form of workingmen's insurance which has not been taken up by the government.

The usual amount of contribution to the unions by the members runs from two and a half to seven cents per week;

in the Hirsch-Dunker unions the rate sometimes runs up to fourteen cents.

Germany was the first nation to introduce successfully a system of workingmen's insurance under the control of the government. We are told that the principal motive behind this social legislation was the desire to limit the spread of socialism among the laboring class. The idea, however, is very congenial to the German mind, which has the habit of expecting the state to do things with no fear of the reproach of paternalism. Moreover, the pension system for all employees of the government and the immobility of the working population furnished the pattern and facilitated the introduction of the system. What we have said in the preceding pages about the permanence of employment, the difficulty and rarity of changes from one occupation to another, the enormous obstacles which prevent a workingman from ever becoming anything else than a workingman, and which even hinder him from passing from one trade to another, the slow and easy-going temperament of the German, — all these things enable us to understand why it was easy to introduce workingmen's insurance, and why it was successful.

That the effect of this insurance is to make the working people improvident is contradicted by the statistics of savings. In 1882 only one person in eight had a savings-bank account; in 1897 one person in four in Prussia possessed an account. The amount on deposit had increased in this period threefold, amounting to a total of $1,250,000,000 in 1897. Twenty-eight per cent of this sum consisted of accounts of less than $15, 16 per cent of from $15 to $33; 15 per cent of from $38 to $75; and 4 per cent of over $750.[1] The savings per capita in England amount to about one half those in Germany.

The ideas on which the German insurance system is based are compulsory thrift, state aid, and employers'

[1] Von Halle, *Volks- und Seewirtschaft*, p. 59.

liability. The workingmen are compelled by law to participate in the scheme; the state contributes from the public funds to help bear the expenses of the system, and the employers are to take a large share in organizing and in supporting the system.

The first insurance inaugurated by the state was insurance against sickness, the law being passed in 1883. It was made compulsory in manufacturing, commerce, and trade, and local authorities were empowered to extend it to other classes of the population.

The expenses of this insurance are defrayed from funds which are under the control partly of the state and partly of local associations of employers. The premiums average from $1\frac{1}{2}$ to 3 per cent of the wages of the workmen insured; two thirds is paid by the men and one third by the employers. From nine to ten million persons are insured, and in 1900 four million persons received benefit from the funds, amounting altogether to $42,000,000. The benefit includes free medicine, attendance, and a payment of at least one half of the customary wages, or free treatment in a hospital with half pay to the family. The maximum period for receiving this benefit is thirteen weeks.

The law creating the system of insurance against accident was passed in 1884 at the instigation of Emperor William I. It makes it compulsory for all the employers of a certain district to belong to an association composed of men active in the particular industry. These associations have a legal personality and are self-governed. The funds are maintained by the contributions of the members, the amount being assessed on each one according to the total amount of wages he pays. Payments to the beneficiaries begin only after the thirteenth week from the date of the accident, the first thirteen weeks falling under the care of the sick-insurance funds. The benefit consists of free medical treatment and the receipt of a part of the usual wages up to two thirds, depending upon the seriousness

of the injury and the helplessness of the patient. In case death ensues as a result of the accident, a burial allowance of no less than twelve dollars and a pension to the family of from 20 to 60 per cent of the former earnings of the deceased are made. This insurance lays no burdens upon the workingman, since the whole cost falls upon the employers.

In 1901 6,884,076 employees in industrial occupations were insured, and 384,566 persons received a total benefit of $26,084,865.

The insurance against infirmity and old age is made compulsory on every person over sixteen years of age working for wages of less than $487 per year, except officers of the government who are otherwise provided for. Persons who earn wages of more than $487 and less than $730 may insure voluntarily. The system was introduced by a law of 1889, and is therefore the latest of the workingmen's insurance laws.

The insured are divided into five classes, according to income. The five classes and the amount of pension they receive in case either of infirmity or old age are as follows: —

	Weekly Payments	*Benefits*	
		Old age	*Infirmity*
(1) Incomes up to $85	3½ cts.	$27	$27
(2) Incomes of $85 to $134	5	34	29
(3) Incomes of $134 to $207	6	41	32
(4) Incomes of $207 to $280	7½	49	34
(5) Incomes of $280 to $730	9	56	36

The premiums are paid by means of books in which stamps are pasted by the employers to the amount of the premiums. These stamps are purchased by the employers themselves, and they are permitted to deduct one half of the cost from the wages of the employees. For every person insured the state contributes twelve dollars to the fund.

The infirmity which entitles the insured to receive

benefit from the fund is incapacity to earn a living for a period of twenty-six weeks. Persons must have been insured for from two hundred to five hundred weeks before they can claim benefit. Persons who are undergoing military service or who are incapacitated by sickness are exempt from the payment of premiums, but the time is reckoned in as part of the total length of the insured time. An important point with regard to infirmity insurance is a provision for insured persons who by sickness are incapacitated from earning their living. In such cases the insurance officers are empowered to undertake the medical treatment of the person in a hospital or sanitarium; and if the person is subject to sick insurance also, the obligation of the latter passes on to the infirmity insurance, but the amount expended is reimbursed by the funds of the sick insurance.

The old-age pensions begin after the seventieth year of age. The person must have been insured at least twelve hundred weeks to be entitled to the pension.

The number of claims allowed in the period 1891–1901 have been: for infirmity, 734,251, averaging, in 1900, $35.50 each; and for old age, 389,971, averaging, in 1900, $36.46 each.

Concerning workingmen's insurance in general, the following statistics show the scope to 1902: —

Number of persons insured	6,736,000
Total amount of benefits paid	$105,603,000
Of this amount the state paid	10,073,000
Employers paid	51,068,000
Employees paid	44,285,150

The employees received a benefit of $61,317,000 beyond the amount of their contributions. The total benefit, however, measured in the increased welfare and happiness of the people, has been far greater than any money gain, for the insurance system has taken away a great load of anxiety and worry, not only from the workingman himself,

but from his family, who will be provided for during the incapacity or after the death of the bread-winner.

Quoting from the report of the correspondent of the London *Times* (1903), from which most of the above statistics have been taken: —

"With regard to the efficiency of labor, the insurance has developed a very remarkable and unforeseen result. The prospect of having a great and increasing number of chronic invalids on their hands has stimulated the insurance officers and societies to a great preventive movement. Seventy to eighty sanitariums have been built by the insurance societies, with seven thousand beds. These are for cases of consumption alone; 67.3 per cent of the patients were fully restored to work, 7 per cent were fully capable of other work, 14.6 per cent were partly capable of other work, and only 11 per cent were not able to earn a living."

The housing question has been one of the great social problems of Germany for the last few years, and an immense amount of literature has been written on the subject. The great and sudden growth of the large cities and factory towns has created a demand for dwellings which has run far ahead of the supply, and has led, in many places, to overcrowding. In factory towns the average is generally over two persons to the room, which is very much higher than under similar circumstances in England, where the rents for workingmen average scarcely more than half as much as in Germany.

In the latter country the rent averages from forty to sixty cents per week for an unfurnished room. The percentage of the workingman's income which goes for rent in the different German cities has been calculated by Mr. W. J. Ashley [1] as follows: —

Yearly incomes	*Berlin*	*Hamburg*	*Breslau*	*Leipzig*
Under $150	41.6%	26.5%	28.7%	29.9%
$150 to $300	24.7	23.5	21.0	21.2
$300 to $450	21.8	18.9	20.8	19.9

[1] Ashley, *The Progress of the German Working Classes during the Last Quarter of a Century*, p. 49.

Various measures have been taken to relieve this difficulty. In the Rhine-Westphalian district employers have expended over $52,000,000 in building houses and in aiding their employees to build. Municipal authorities have built houses and have loaned money for building at cheap rates of interest. In Prussia the state has provided housing for some of its own officers, particularly for the subordinate railroad men. Up to 1901 it had erected 473 houses, containing 2231 dwellings and 7009 rooms, costing $2,195,569.

CHAPTER VIII

CONCLUSION

The greatest problems which confront the German Empire to-day are those involved in the rapidly increasing density of population. The one point at which the empire is at odds with the policy of the United States, *i. e.* the Monroe Doctrine, may be referred to the same cause. Americans, as a rule, do not understand the gravity of the situation which impels Germany to adopt this or that policy; they are too apt to ascribe to Germany a spirit of wanton aggressiveness and a lust for territorial expansion, when in fact her policy has been dictated by circumstances which leave no other course open. A little study of the facts in the case, therefore, will conduce to a better understanding of the matter and to sounder judgments on our part.

Germany has a population of over fifty-eight million people, which is increasing at the rate of over one per cent per annum. Leroy-Beaulieu estimates that within a hundred years the population will have increased to two hundred million, an estimate with which Professor Schmoller agrees. For the last twenty-five years Germany has not been able to produce a sufficient quantity of grain to cover her consumption; her production at present is about fifteen million tons and her consumption twenty million tons; therefore five million tons, or about two hundred million bushels, must be imported. For the future, it is out of the question to expect that any possible increase of production will be able to cover even the increase in consumption, to say nothing of making up the deficit.

Russia may expand to the east, the United States to the

west, and France to the south into Africa, while England has colonies to receive her superfluous population. Germany, on the other hand, has no chance to expand her territory contiguously in any direction, and her colonies in Africa have not proved attractive to German emigrants; in 1903 there were only 226 Germans migrating to the whole continent of Africa. Asia offers no outlet, and the United States stands guard over South America.

If the mother country would hold the allegiance of her people, she must either support them at home, or extend her authority over new territory. Experience has shown that the six to seven million Germans who have left their native country are lost after the second generation both as German citizens and as consumers of German goods. These emigrants have cost the empire the expense of their education and the capital which they take with them out of the country. Schmoller estimates that up to 1900 these emigrants have cost Germany from one and a half to two billion dollars. In view of these facts, therefore, emigration, as it has taken place in the past, is not regarded as a satisfactory solution of the population problem.

If the increasing population is to be sustained within the country, it can be done only by extending foreign commerce. Imports of food-stuffs and raw materials must be paid for with exports of manufactured goods, for which a market must be found. Some of the imports may be paid for by interest due on investments abroad and by the earnings of German ships in the foreign carrying trade. Investments abroad, however, often go to aid in establishing enterprises in foreign countries which compete directly with the home industries, and thus narrow the export market, and so in the end are of doubtful advantage.

It is estimated that over three billion dollars' worth of foreign stocks and bonds are held by Germans. Besides this, there is perhaps nearly two billion dollars invested in foreign industry and trade, according to the consular

reports of 1897 and 1898. These foreign investments, amounting to over five billion dollars, yield an annual income of from two hundred and fifty to two hundred and seventy-five million dollars. The annual profit from German shipping is about sixty million dollars. Altogether, therefore, Germany draws from three hundred to three hundred and fifty million dollars from abroad every year for which she need export nothing.[1]

The dangers which Germany may meet when she depends upon foreign commerce for support and develops into an industrial country are of two sorts: the first threatening her imports and the second her exports. The countries from whom she derives her imports may refuse to send raw materials and food-stuffs, or discourage such trade by levying export taxes, or they may become involved in war, or their own population may grow so large as to require their whole produce.

On the other hand, there is the danger that these countries which now afford good markets for manufactured goods may in the future produce for themselves, or, while encouraging their own industries, levy a high import duty on foreign products; finally, there is always present the danger of competition from other industrial states, which tends to become ever more severe. This commercial rivalry is always a fruitful source of disputes which may terminate in war.

The past commercial relations of European nations with the United States have exhibited these dangers. One may cite by way of illustration the severe distress of the English textile industries when the export of cotton from the Southern ports was inhibited during the Civil War; the depression which ensued in many industries after the passage of the McKinley Bill; and the latest danger arising out of the "American invasion," foreshadowing the time

[1] Paul Voigt, in *Handels- und Machtpolitik*, vol. i, p. 202. Stuttgart: J. G. Cotta. 1900.

when the United States will not only be able to supply most of her own needs for manufactured goods, but will become a serious rival in the world markets.

Russia is another great source from which Germany derives her imported food-stuffs and markets her manufactured goods. The food-supplies which Russia furnishes, however, do not represent an excess of production, but rather a deficit in consumption on the part of her own people. If, out of the present complications in which Russia is involved, there come political changes favorable to industrial development, this source of raw materials and food-stuffs, as well as this market for manufactured goods, is likely to fail.

From the East also threatens the danger of industrial competition. India has already begun the development of her textile industry, and with her cheap labor may usurp the advantage which Germany, in that respect, has held against England and the United States in that branch of industry.

More difficult to estimate is the danger from Japanese and Chinese competition. What results may come from the rapid march of events in the Orient can only be conjectured, but, because uncertain, they are none the less real and threatening for the future.

While in recent times Germany has shown herself able to more than hold her own in competition for the world markets, she has no assurance that she can continue to do so, at least to the same extent. England is being thoroughly awakened out of the lethargy which her long-continued commercial prosperity had induced, and which permitted Germany to deprive her of so many markets before she realized her danger. Germany cannot always hold a monopoly of those excellent institutions which have brought her prosperity. Her technical schools and her universities are crowded with foreigners who return home equipped with the best instruction Germany can offer.

The time has passed when one country can long retain any artificial advantage over its rivals; each nation is becoming more alert in adapting to its own use whatever of good it can find in the processes or institutions of its neighbors.

Another danger which threatens the foreign commerce of Germany is the modern policy of national exclusiveness and self-sufficiency. The free-trade ideas which prevailed so generally during the past century afforded industrial nations a splendid opportunity to extend their wealth and power by means of commerce. The tendency now is in the other direction; each nation is striving to make itself industrially independent by fostering its own manufactures and sheltering them behind tariff walls. Even England is becoming doubtful of the efficacy of free trade, and is considering measures by which the trade of the British Empire may be reserved for the Britons.

Facts such as these impel Germany to consider what her position in the world market will be when these tendencies shall have developed themselves further. The trade of her own colonies is as yet insignificant. It is most natural, therefore, that she should begin to look around for markets which she can control, and which are not liable to be closed against her.

The only alternative possible, if Germany fails to support her population at home by means of foreign trade, is emigration. Unless the empire can extend its government over those territories to which the people are willing to emigrate, she must inevitably lose them as subjects. The same authority which estimated the future population of Germany at two hundred million in one hundred years, also calculated that the population of the English-speaking nations with their colonies would be nine hundred million at the same time, and that of Russia would be three hundred million.

These figures suggest the difficulty which will confront the German Empire in maintaining her place as a first-

class power, even if she is able to hold intact as German subjects the natural increase of her population.

Those who see the problem in this light are agreed upon at least one line of policy, and that is the increase of the navy for the protection of the foreign trade interests and the colonial possessions. Seventy per cent of Germany's foreign trade comes by way of the sea, and to this her superior army can offer little protection. In 1900 a naval programme was adopted, which will involve an expenditure of $357,000,000 before it is carried to completion.

After having looked at the problem of the German from the German's point of view, it is not difficult to see that the recent increase of the navy does not necessarily mean that the empire is thinking of embarking on a policy of aggression, or that she contemplates contesting with England for the dominion of the sea. The Germans are not an aggressive people, but they have among them some very clear thinkers, who are looking ahead into the future, and who see the problems which will have to be met. They do not shrink from these problems, and they regard the increase of population with approval. They believe that Germany has a mission in the world; as the emperor expressed it in a recent speech, "the Germans are the salt of the earth."

I believe there is less jingoism among the Germans than among the Americans, the English, or the French. It has been said many times that the German is his own severest critic, and that he is always ready to appreciate to the fullest extent anything foreign. It is this quality which has made it so easy for him to take up and imitate, and often to improve upon, the best industrial contrivances of his neighbors. That is why the study of foreign languages is so highly regarded and so eagerly pursued. Doubtless this lack of self-complacency and chauvinism was acquired when German unity existed only as a dream, and when there was very little either in industry or politics

to justify German self-esteem. What effect the recent achievements will have in this respect remains to be seen.

The seriousness of the German national problems is apt to be underestimated by the American because they are so much different from those of his own country. Political corruption does not exist to any appreciable extent in Germany, and the problem of the great organizations of capital has not yet become so serious. The best guarantee that these problems or others like them will be met if they appear, lies in the law-abiding character of the German citizen. There are probably fewer anarchistic tendencies among the German people than among any other nation in the world. The rapid spread of Social Democracy may indicate dissatisfaction with the present régime, but it is in no way hostile to strong and efficient government. The leading thought among the Social Democrats is no longer revolution and implacable hostility between the capitalists and the proletariat; the majority of the members of the party, though perhaps not the leaders, believe that the interests of the workingman are not sufficiently represented in the government, and that the best way to get them represented is to vote the Social-Democratic ticket.

The best hope for the future of Germany lies in the character of the people. As a nation they have the ability to face their problems squarely and to understand them thoroughly; they have also the ability to proceed to solve them in the most straightforward and reasonable manner, without losing their direction in a mass of side issues. This comes from the scientific cast of the German mind — slow to alter, matter-of-fact, serious, and thorough. The national mind is not easily swung this way and that by slight causes; it took many years for the sentiment of national unity to realize itself, and it was accomplished in the slow but thorough way which characterizes whatever the German does.

In the same way the present industrial prosperity of the empire is not an ephemeral phenomenon, but is based upon the firmest of foundations, which were preparing long before the attention of the world was attracted toward industrial Germany. For this reason the present industrial condition is likely to endure and even to improve.

The best thing that the United States has to learn from Germany is respect for law, both on the part of the law-makers and those subject to the law. German laws are made to be enforced, and hence are more scientifically drawn. When a matter requiring the enactment of a law is proposed in a German legislature, a commission is selected for the purpose of draughting the law. This commission is composed of men who are the most scientifically equipped for the task. Many of the proposals come directly from the ministry, and the ministers defend them in person before the assemblies. The members of the legislatures need not be residents of the district which chooses them, and hence do not feel that they represent narrow sectional interests, but rather the interest of the whole nation. In this way, trading or "log-rolling," which is responsible for much legislative evil among us, is avoided to a large extent. Another advantage of this method is that it improves the quality of the membership, since the choice of the electors is not confined to residents of their own community. Thus it happens that a particularly able man is not excluded from candidacy because the people of his own district may not care to send him to the legislative assembly, either because of political differences or because there may be several very able men residing in the district.

The scientific men of Germany have a closer relation to the government than in our own country. The professors in the classical and technical universities are officers of the government, and their assistance is constantly required in matters which lie within their field. For in-

stance, Dr. Ernst von Halle, a professor in the University of Berlin, is also an officer in the naval department because of the special study which he has made of the foreign relations of Germany in regard to economic affairs. The nation, therefore, is able to make use of the results of the training, travel, and research of Professor von Halle in the most practical way. The professors of the University of Berlin are frequently members of the Reichstag or of the Prussian legislature which meets in Berlin, and they can perform their duties as legislators without abandoning their university chairs.

Probably we can put down as one of the most fundamental and important causes of the present prosperity of the German nation *the close relations which exist in that country between science and practical affairs.* The German university professors are not only officers of the government, but their advice and assistance is often asked for by any of the governmental departments when the subject falls within their especial province. When men like Professor Adolph Wagner have a hand in draughting legislation dealing with taxation and state finance, it goes without saying that such legislation will have a scientific character that distinguishes it broadly from legislation drawn up by practical politicians.

The same thing prevails in industry. The men who have the technical direction of the processes and the experimental laboratories have been trained in the technical schools, and are able to bring into practical use the latest achievements of science. The system for the utilization of the newest scientific discoveries is quite perfect; besides maintaining their own laboratories and staff of scientists, many of the large chemical concerns pay retaining fees to the professors in the universities to act as their technical advisers, and to agree to give the company the benefit of any scientific discovery they may make.

The fear of an "American Invasion" has occasioned

a vast amount of discussion about America in Germany recently. There is genuine alarm among large numbers of people lest the expansion of the American industries destroy the foreign trade of the Germans and even invade the home market. The best authorities on the subject who are able to make a scientific comparison of the relative capacity of the two countries are of the opinion that the "American Invasion" is simply a "scare" without any reasonable foundation. *Geheim Kommerzienrat*, L. M. Goldberger, whose recent book is regarded as a highly scientific work, writes on "The American Peril" in the *Preussische Jahrbücher* as follows: —

"'The Land of Unlimited Possibilities' is far from being a land of invincible preëminence. While I do not underestimate the lead which she has justly taken by reason of her immeasurable productive resources, her enterprise, organizing skill, and remorseless pursuance of her own interests, I nevertheless know the darker side of American development and recognize the causes which will ultimately operate against the tree of American enterprise, — reaching like Jack's beanstalk to the Heavens. The Brobdignagian enterprises of the American Trusts, working with their millions and milliards and swaying the fate of the entire country, are 'fruits on the tree of a protective tariff' which will be endured by the buyers and workers whom the Trusts have exploited only so long as these visibly benefit by the system, *i. e.* so long as their profits and wages increase under the Trust régime. But the coalition of the working classes which is rapidly developing will soon represent their own interests as forcibly and inexorably as the employers on their part have done. Once the working classes have attained their goal, they will stretch forth a strong hand towards political power. And they will know how to get it. They will force employers to listen to the claims of their laborers. This must and will within the next few years disperse to a large extent the 'American Peril' which threatens Germany in the field of industrialism.

"America's practically organized factories, her extensive use of special machines in all branches of manufacturing, her inventiveness, etc., etc., will in any case serve to maintain for her the lead over Germany for years to come — in certain industrial

fields. But all that she has done we can imitate, and already have imitated in our modern, better conducted factories. We must still learn, however, and must take the lesson seriously, to keep our eyes open unceasingly and be swift to recognize danger, to study wherein the advantage of our adversary lies and imitate accordingly. But in all this striving we must not underestimate our own strength, or suffer the appearance of the epidemic *Kleinheitwahn* among us; let us remember with what sure-footed uniformity of tread German industry has made its way to the front.

" In England industrial progress has been at a standstill everywhere. America has gone ahead in the same field by leaps and bounds. Germany's progress though slow has been sure, and percent for percent is probably equal to America's. We must remain conscious of the fact that nothing could be more injurious to the true interests of the Fatherland than for us to whine and truckle and beat the big drum to the sound of that obnoxious catchword, 'The American Peril.'"

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